THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

VOL. CXIII.—No. 3896. OCTOBER 5, 1917.

RECREATION AND DESIGN.

IT is to be hoped that when the present time of stress is over people will once more remember the importance of leisure in life, by which we do not mean inaction, but the necessary pauses in effort which are required if we care to preserve mental and bodily freshness, without which the best work becomes impossible and the most strenuous mental effort fails in securing its ends. Many, it is feared, cannot ever work hard or well, but many, who can, fail because they are constitutionally incapable of taking leisure. If we read old books we are conscious of a larger, freer and often more tolerant atmosphere of thought than that which is often displayed to-day. There is a danger at present that in the contemplation of the colossal operations of war and of industry we may forget how really small and unimportant we are in the world, how much can be done and yet leave the course of human life unaltered, and how we may lose in appreciation if we overrate the importance of what we are individually able to achieve. We believe that many architects work too hard and at the same time do not give thought or time enough really to appreciate the true merits of what they are doing. An architect may strive to persuade a client to accept one scheme when another appeals to him, only to discover after thought that he could have attained an equally good result by following the lead laid down.

The younger an architect is the more disposed he usually is to believe that he has discovered the only way to arrive at architectural salvation in the solution of a problem, while his client, becoming bored by an exhibition of strenuousness which seems unnecessary, begins to wish he had chosen another guide; and many of the profession have tired themselves out for an inadequate result. The work of the eighteenth century, which we now admire, was done by men who took life less strenuously and probably thought less of its importance to the community than most of us do now, though it is true they were living in easier times when life had not acquired its present complexity. To please a courtly patron was probably easier than to win a great competition, and architect and patron were brought nearer together by the well-understood conventions of the age than are architect and client of to-day; the century was one when an epigram was often more effective than a prolonged discussion would be now. Many are convinced that the revival of craftsmanship is a necessary precedent to the revival of architecture, but such a revival will never be possible unless we can produce it among architects themselves by cultivating a more communistic spirit in designing. The man who works with his assistants, availing himself of their powers of design and directing them generally, rather than expecting them mechanically to carry out his ideas, will in the end create a little school or community of workers permeated by the same ideals, and the work produced by such a system will undoubtedly be better than that of the overworked man who insists on doing everything himself because the architect will have leisure and will attain the power of looking at things from a broader standpoint. The work done in the great American offices is of this order, and despite its immense volume is certainly the work of men who keep fresher than many do here, so that we often discover in the work of the new world a sense of spaciousness and a suggestion of repose too often absent here. Between training men to work with us and training them to work under us we should choose the first rather than the last, and so encourage a sense of fellowship among architects of all ages. Otherwise, in the pressure of modern life, we shall fail to attain to those qualities which give the lasting charm we appreciate in the work of the past, the expression of enjoyment rather than that of constant effort and striving by which so much of our best work is spoiled.

Much of the work of the day is clever and ingenious, but at the same time it shows a want of the general cultivation which we find is possessed by many amateurs, who, though they have neither the training nor the aptitude which would enable them to design, possess an instinctive sense of culture which convinces them that something in a design prepared is wrong. This feeling is probably at the root of the undoubted fact that architects as a whole do not obtain the support they feel they should from the cultivated classes, and the remedy seems to lie in the insistence on the "commercial necessity" of the architect becoming a man of wider culture. If this is so, he must realise that if he spends his life, when his school days are ended, over a drawing board, taking few opportunities of meeting with his fellows, reading little except what is immediately necessary for practical purposes, he will find himself less and less able to meet his clients on common ground. The man who judges the value of education solely by its immediate practical value to him is likely to become an insufferable bore, tolerated when he cannot be dispensed with, but not a valued member of the community, and it is only by bringing the architect's education into line with that of the cultivated man of the world that he can secure the influence and support which are wanted; and to obtain the leisure which is necessary to effect this end, the architect must learn the art of working with others and not simply directing them to carry out his ideas. All admit that the achievements of mediæval work were the result of the joint effort of craftsmen and master builders working together for a common end, but it is clear that those architects who use their assistants simply to finish their designs and to do routine work, repressing any individual element, are quite unlikely to be able to encourage the craftsman on whom so much of the merit of work must depend.

If time has increased the amount of work which an architect has to attend to, there are two ways of successfully coping with it—one to attempt less in order to have more time to devote to it, the other to learn the art of working in combination with others and sharing the work, and so covering more ground. Some are temperamentally fitted to achieve success by the one method and some by the other, but though an architect may succeed in satisfying practical requirements, even if he is overworked, he can never expect in such a condition to do what is æsthetically his best, nor is the tired man likely to be fitted to hold his own effectually in intercourse with his fellows. We believe the extravagancies and oddities which disfigure many of our buildings are the result not of ignorance, but of fatigue. They are the attempt of the weary to satisfy, which a fresher mind would reject. Successful planning, that sure foundation, can seldom be achieved by a man who is fatigued and overdone, and though study and diligence in acquiring knowledge are of the first importance, we must never forget that neither mind nor body is capable of continuous effort, and we must be content to give ourselves periods of leisure if we wish to attain to the best. The time which is most wasted is that in which we tire ourselves needlessly, and time may be as usefully spent in recreation which gives pleasure as in work for only after the rest given by recreation, which takes an infinite number of forms, depending on varying temperament, can we do the best work which we are capable of, which is the only thing worth doing, however busy we may be.

NOTES.

A Fine Addition to Street Architecture.

THE outline of the site on which the Australian Commonwealth building stands presented a problem requiring careful thought in the design of the elevations, and now that the building is practically open down to the street level, we are able to judge of the result pretty completely. The Strand frontage, as one views it looking towards the east, forms the left-hand framework of a very striking architectural picture. The new Australian building, with its simple dignity, forms a telling contrast to the picturesque variety of St. Clement Danes Church and the Law Courts beyond—a group of white stone buildings which, in its own way, is as fine as anything one could point to in the British Isles. The dark, slender line of the Law Courts *flèche*, coming between the Australian building and the many-storied tower of St. Clement Danes, forms the centre of a very striking picture which is one of the most pleasing which modern London can show. When we look back from the east towards the west to the eastern angle of the building with its two receding flanks, we have a fine, solid and dignified block which will hold its own as regards general mass and outline with any new buildings we have. The curved frontage to Aldwych comes very satisfactorily into line and mass with the eastern end of the building, but it is in its purely elevational effect a very agreeable and well-balanced street frontage. We think the architects, Messrs. A. Mackenzie & Son, deserve a note of congratulation on the result of their labours, which seems due now that the effect of the whole may be fairly analysed.

The War Museum Again.

WE quite agree with Mr. Hare that if a War Museum is to be built the design on which it is based should be chosen by open competition, but it would seem that the R.I.B.A. might further consider whether a museum is needed at all, and, if it is needed, whether the project we advocated of including it as a part in the projected completion of the British Museum is not the most desirable solution of the problem. Architects can realise better than most men what the interior of a war museum would be, and will probably come to the same conclusion as to the merit of the conception. In any case it is necessary to finish the war before we can suitably commemorate it in the form of a building, and in the meantime it is to be hoped that the subject of the design will remain in abeyance. We do not want to be told that a suitable building has been designed by the staff of the . . . . and that the matter is closed, nor can it be treated as an urgent question. We might even go on for five or six years without what some may consider to be a white elephant.

Private Enterprise and Housing.

A STRONG committee has been formed in Liverpool of the representatives of trades and professions connected with housing, the President of the Liverpool Property Owners Association pointing out that if the Government took up the work it would lead to the annihilation of a big and important industry; and he contended that municipal authorities should not be allowed to do such work excepting in cases where the removal of insanitary property was concerned, with which view we are in entire agreement. If the desire of local authorities is to raise the standard of design of such buildings, it is within their power to do so without carrying out work municipally. Our aim should be to develop the critical and supervisory functions of official bodies but to place strict limits on their executive work, both because such work inevitably leads to the multiplication of official posts at the expense of the ratepayer, and because it is an unfair method of handicapping private enterprise. One of the speakers at the conference stated that it was important that objections to the Finance Act of 1909 should be kept in the background, but we can see no reason why the industries concerned should not give full prominence to the necessity of the repeal of the Act, which would lighten and not add to the taxpayers' burdens, and is clearly demanded by considerations of justice. There are many signs at present that good cases are allowed to sink into the background through feeble or timid advocacy, and as the interests represented by the private builders are those of the ordinary citizen as apart from the Socialist and the inevitable official, we see no reason why a good case should not be thoroughly made out.

A good Epitaph.

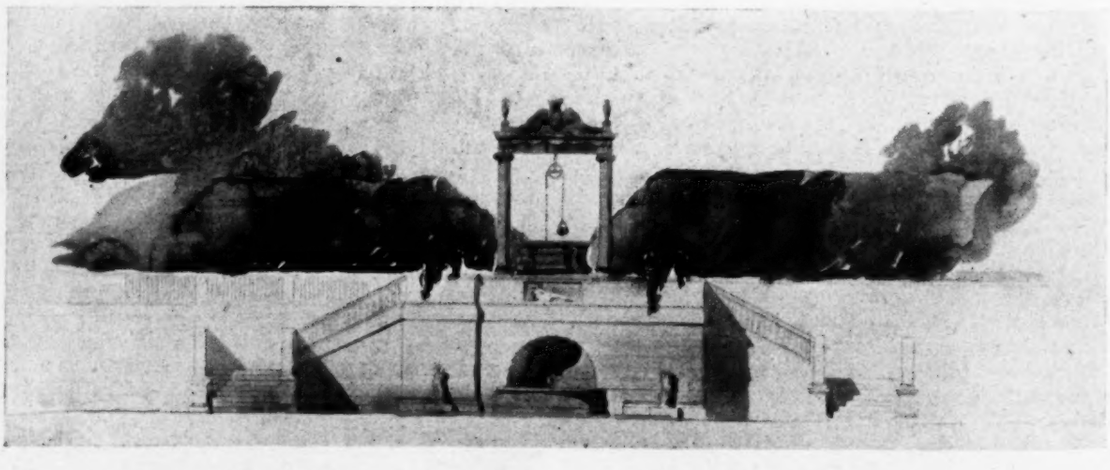
The Church of St. John, Burford, Oxon, is a treasure-house of fine monumental art and in it are some unusually good epitaphs, of which the following is perhaps the best:—

> **Lo hudled up, together lye,**
> **Gray age, Grene youth, white Infancy.**
> **If Death doth Nature's Laws dispense**
> **'Tis fit, one Flesh, one House should have**
> **One Tomb, one Epitaph, one Grave,**
> **And they that Liv'd and Loved each other,**
> **Should dye and lye and sleep together.**
> **Go reader, whether go or stay**
> **Thou must not hence be long away.**

In Burford also lies the body of Christopher Kemster, a freeman of the City of London and the Company of Masons and one of the master masons employed in the building of the dome of St. Paul's and several of the City churches. Of him we are told that he "chose this Parish in which he was born for a place of Retreat from Business in his latter years, which he employed with the greatest care and study to fit and prepare himself for Eternity." The monument is surmounted by the arms of the Masons' Company and two boys on either side are depicted shedding tears. We could hope that with the revival of monumental art the composition of worthy epitaphs, whose quaint diction adds so much charm and interest to old monuments, will once more be studied.

Clay Lump.

A WRITER in a local paper calls attention to a "natural" building material used in some parts of the country, and locally known as Clay Lump in Norfolk, and which is used in many parts of the east. The clay is well puddled and mixed with straw and afterwards made into lumps, which are laid out to dry like ordinary bricks, being left for some three months to dry. Each lump has the capacity of about eight bricks, and their cost in Norfolk thirty years ago was only 8s. a hundred, which indicates the cheapness of the material. No plastering is required, as the lumps can be floated off so as to give a smooth surface for papering, while a brick or tarred outer casing affords protection from external wet. The writer suggests that mortar might be dispensed with as floated clay might be used. The writer of the article suggests that such a material is well worth consideration now that the cost of building is likely to be heavier than it has been before, but we have not sufficient data before us to say whether the suggestion is one which might be widely acted on. Mr. F. J. Bennett, F.G.S., who writes the article, has found two straw-thatched cottages at Norton, close to the church, which were said to have been built by a former occupier. The walls are about 10 in. thick and plastered outside. Mr. Bennett will be glad to hear of other examples.



A Garden Well-head Design. By Mr. A. K. Chandhim (Third Year Student).
Students' Work, Architectural Association Schools. (*See page* 202.)

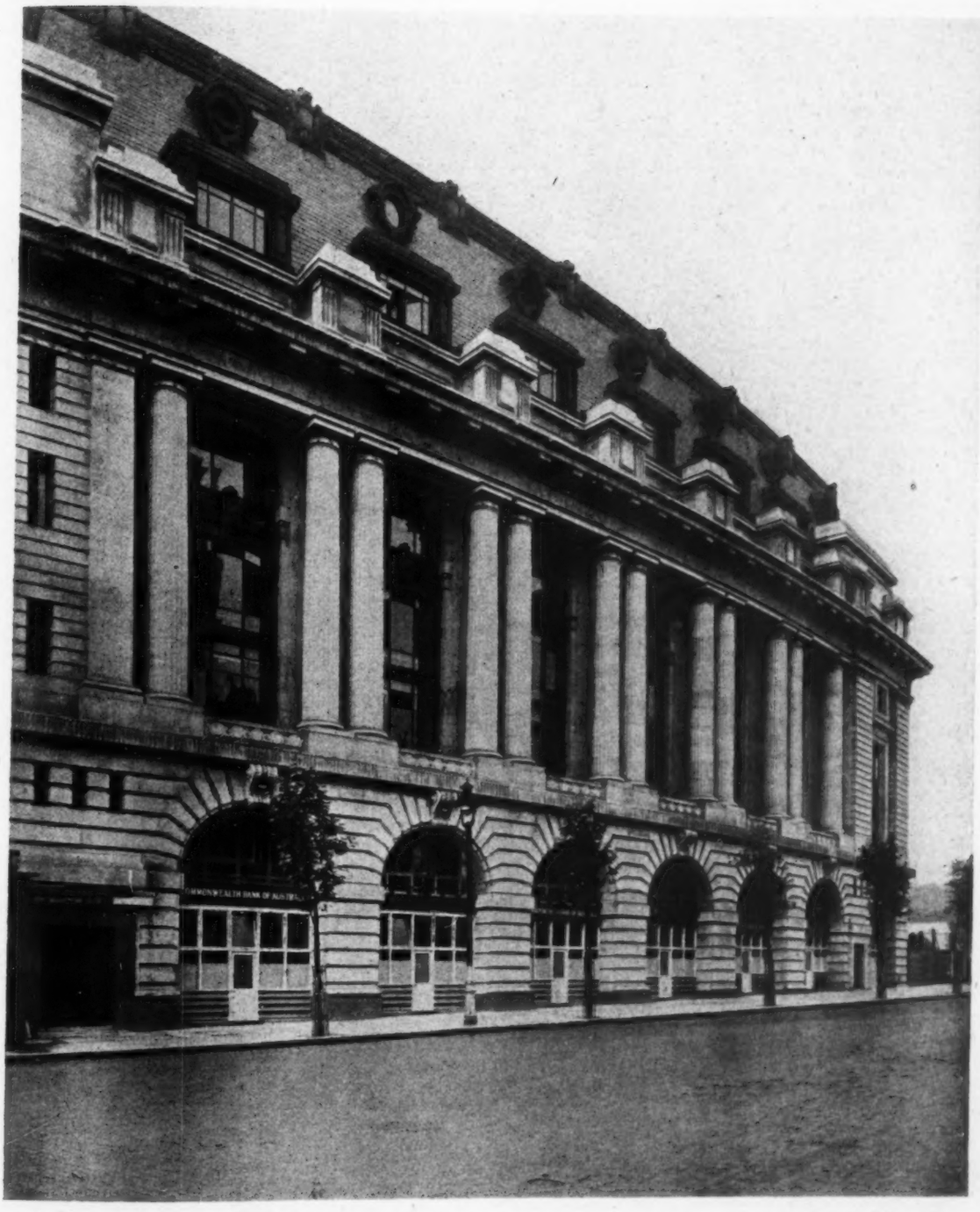


Photo: Bedford Lemere.

Australia House, Aldwych, London.

MR. A. MARSHALL MACKENZIE, LL.D., A.R.S.A., F.R.I.B.A., and MR. A. G. R. MACKENZIE, F.R.I.B.A., architects.

THE NATIONAL HOUSING AND TOWN PLANNING COUNCIL.

The Formation of a Technical Conference.

We have received the following from the National Housing and Town Planning Council :—

For several months past a number of informal meetings have been held under the auspices of the National Housing and Town Planning Council, of technicians interested in providing workable solutions of those difficulties which will undoubtedly arise in carrying post-war housing schemes into effect. The discussion at these informal meetings has proved to be so valuable that it was recognised to be desirable that a Technical Conference should be definitely set up, with the following terms of reference :

(1) The methods by which the best designs and lay-out plan can be secured for housing schemes to be carried into effect at the close of the war in both urban and rural areas.

(2) The provision of workable solutions of technical difficulties arising in regard to :—

(*a*) The shortage of materials (and more especially timber) where such shortage is due to the abnormal demand which will arise at the close of the war.

(*b*) The economical adoption and use in building construction of new materials or new forms of materials.

(*c*) The substitution of materials in construction, e.g., the substitution of concrete, for timber, in floor joists, &c.

(3) The provision of labour-saving appliances in the equipment of houses.

(4) The provision of useful opportunities for experiment.

(5) The statement of the scope and possibilities of useful standardisation in the production of component parts.

(6) The statement of the points on which the By-laws usually in operation in (*a*) urban, and (*b*) rural areas should be amended in order to permit of the adoption of new ideas in building construction.

(7) Methods by which the proper planning of those areas in which after-the-war housing schemes are to be carried into effect can be secured—including the relaxation of conditions as to road width in residential neighbourhoods.

The representative character of this Technical Conference—which is now in being—will be gathered from the list of members composing the Conference :—

Chairman : Councillor S. Smethurst, J.P. (Past-President, National Federation of Building Trades Employers).

Hon. Secretary : Henry R. Aldridge.

Committee No. 1.

Chairman : Mr. H. V. Lanchester, F.R.I.B.A.

Vice-Chairman : Mr. E. C. P. Monson, F.R.I.B.A., F.S.I. (Past-President of the Society of Architects).

Minute Secretary : Mr. Alex. Harvey, F.R.I.B.A. (President, Birmingham Architectural Association).

Professor P. Abercrombie, F.R.I.B.A. (Professor of Town Planning, Liverpool University); Mr. A. F. Cave (Editor, *Municipal Journal*); Mr. J. W. Cockrill, A.R.I.B.A., M.Inst.C.E. (Borough Architect and Surveyor, Great Yarmouth); Mr. H. M. De Colleville, A.R.I.B.A., A.M.Inst.C.E.; Mr. Gayer (National Federation of Building Trades' Employers); Mr. T. W. A. Hayward, A.M.Inst.C.E. (Borough Surveyor Battersea); Mr. E. Holloway (Surveyor to the Evesham Rural District Council); Mr. H. J. Leaning (Quantity Surveyor); Mr. W. E. Monro, M.S.A.; Mr. D. Barclay Niven, F.R.I.B.A.; Mr. G. Marlow Reed, C.C., J.P. (President, Builders Merchants Alliance); Mr. S. B. Russell, F.R.I.B.A.; Mr. Alban Scott, M.S.A.; Mr. J. E. Swindlehurst (City Engineer and Surveyor, Coventry); Mr. W. F. Wallis (National Federation of Building Trades Employers); two representatives of the National Associated Building Trades Council.

Committee No. 2.

Chairman : Mr. E. J. Hill (National Federation of Building Trades Employers).

Vice-Chairman : Captain H. F. Grant (Birmingham).

Minute Secretary : Mr. E. J. Strange (National Federation of Building Trades Employers).

Mr. J. Bond (Clerk to the Kettering Urban District Council); Mr. Ernest Brown (National Federation of Building Trade Employers); Mr. Reeves Charlesworth (National Federation of Building Trades Employers); Councillor W. E. Davis (Quantity Surveyor); Mr. A. Gladwell (Surveyor to the Eton Rural District Council); Mr. Thomas Howarth (North-Western Federation of Building Trades Employers); Mr. D. M. Jenkins, A.M.Inst.C.E. (Borough Engineer and Surveyor, Neath); Mr. G. H. Paire, M.S.A.; Mr. F. J. Partridge, M.S.A.; Mr. H. W. Rogers (Vice-President, Buildings Merchants Alliance); County Councillor J. H. Ryan (Wimbledon); Mr. E. J. Sadgrove (President, Society of Architects); Mr. Noël D. Sheffield, M.S.A.; Mr. J. Squires (Nottingham); Mr. Percy B. Tubbs, F.R.I.B.A., M.S.A.; two representatives to be appointed by the National Associated Building Trades Council.

Committee No. 3.

Chairman : Mr. E. Willis, A.M.Inst.C.E., F.S.I., A.M.I.M.E. (Chiswick U.D.C.).

Vice-Chairman : Councillor J. Hillier French (Maidstone).

Minute Secretary : Major C. P. Lovelock (Clerk to the Carshalton Urban District Council).

Professor S. D. Adshead, F.R.I.B.A. (Professor of Town Planning, London University); Mr. J. A. Angell, A.M.Inst.C.E. (Engineer and Surveyor to the Beckenham Urban District Council); Mr. T. C. Barralet (Godstone Rural District Council); Mr. F. W. Bristow (Finchley); Mr. J. Crouch, F.R.I.B.A.; Mr. W. H. Gaunt (Letchworth); Mr. A. D. Greatorex (M.Inst.C.E., Borough Surveyor, West Bromwich); Mr. Percival T. Harrison, A.M.Inst.C.E. (Borough Surveyor, Chelmsford); Mr. S. A. Hill-Willis, A.M.Inst.C.E. (Surveyor to the Tilbury District Council); Mr. G. W. Holmes, A.M.Inst.C.E. (Walthamstow Urban District Council); Mr. Percy B. Houfton (Chesterfield); Councillor J. W. White (National Federation of Building Trades Employers); Alderman W. Rhodes (Chesterfield); Mr. C. T. Ruthen, M.S.A. (Swansea); Mr. J. A. Webb, A.M.Inst.C.E. (Hendon Rural District Council); one representative to be appointed by the National Associated Building Trades Council.

Committee No. 1 will deal with points (1), (2) and (3) in the terms of reference, as stated above; Committee No. 2 with points (1), (4) and (5), and Committee No. 3 with points (1), (6) and (7).

In addition to the already strong membership, it has been decided to arrange for the addition of a number of Corresponding Members of the Conference who will not be expected to serve on the Committees, but will attend the meetings of the Conference to take part in the discussion of the proposals submitted by the Committees.

The Conference will, in accordance with the wishes of Mr. Hayes Fisher, endeavour to act as an auxiliary force to the Technical Committee set up by the Government. Sir J. Tudor Walters, M.P., the Chairman of the Government Committee, has already given a warm welcome to the efforts of the Conference, and has asked that all proposals made shall be submitted in the first place to the Committee.

Several questions of vital importance are already under consideration—*e.g.*, the methods by which the proper lay-out on town planning lines of housing schemes can be secured, and the supply in adequate quantity secured of raw materials, and especially timber and bricks. Several points as to the standardisation are being carefully studied by groups set up by Committee No. 1 of the Conference.

This Committee (No. 1) is also entering upon the consideration of labour-saving devices, and Mr. W. Alex. Harvey, F.R.I.B.A., the Minute Secretary, will be willing to bring any proposals or devices likely to be of service before this Committee. Letters should be sent to his office, 55, Bennett's-hill, Birmingham.

CORRESPONDENCE.

Bent Glass and Air Raids.

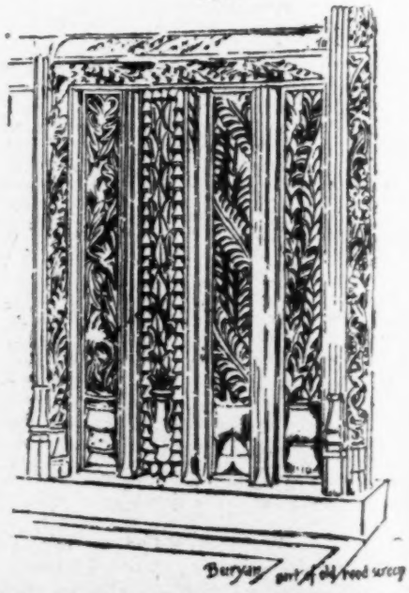
SIR,—We wonder if your readers have noticed how few "bent" plate-glass windows have been broken by the recent air raids, &c., as compared with flat plate-glass windows. In many cases it is most conspicuous how they have remained sound, whilst flat windows each side have been broken to atoms. The explanation is, of course, obvious, the curve of the glass adding tremendously to its strength, in the same way as the arch of a bridge. T. & W. IDE.

"The Father of Concrete."

SIR,—In a letter in the *Builder* for September 14 a correspondent, referring to a previous communication from Mr. Kerner Greenwood, says he should like to know how I acquired the title of "Father of Concrete." I was not aware that I had acquired that title, but if so, it is not of my seeking, as concrete has been known and used for walls and other purposes in modern times long anterior to my first use of it fifty years since, and previous thereto from time immemorial. In the *Builder* for 1859 a description of houses built by M. Coignet is given, and other notes of its use in this country. Mr. Tall took out a patent for appliances for building walls in 1865, but not for the making of concrete, and which were an adaptation of a description of a similar method in Cressy's Cyclopædia and Nicholson's "Carpentry," both published many years antecedent to the date of Tall's patent.

THOMAS POTTER.

St. Ives



Buryan, part of old rood screen

The two pieces of carving from St. Ives [and Buryan indicate the richness and vigor of old Cornish] work. The detail from the old rood screen at Buryan shows what endless variety occurs in this old work.

GENERAL NEWS.

Death of M. Degas.

The death of M. Hilaire Degas, the celebrated painter, is reported from Paris.

A Cardiff Builder's Estate.

Mr. James Allan, of Cardiff, head of the contracting firm of James Allan & Co., Ltd., builders, who died on July 13th, left £128,526, including personalty of the net value of £106,370.

Gift to the National Trust of Kinver Edge.

A meeting took place on Sunday near the Roman Camp above Kinver, from which fine views are obtained of the Clent and Clee Hills, Halvern and Caradoc, to celebrate the gift to the nation of 200 acres of heathery moorland by the family of the late Mr. Thomas Grosvenor Lee, of Birmingham.

Death of Mr. C. N. Hemy, R.A.

Mr. Charles Napier Hemy, R.A., the well-known marine painter, died a few days ago at his residence at Falmouth, in his 77th year. He was born at Newcastle-on-Tyne, and when he was 24 he exhibited his first picture at the Royal Academy. He was elected A.R.A. in 1898 and R.A. in 1910.

The City Engineer of Norwich.

The City Engineer, Mr. A. E. Collins, of Norwich, has been invited by the Right Hon. W. Hayes Fisher, the President of the Local Government Board, to assist his Board in the considerable housing policy under consideration by the Government, by acting on the reconstituted Local Government Board Departmental Committee on Housing By-laws, &c.

Epstein's Latest Works.

We are informed that the sculptor Jacob Epstein has decided, on joining the Army, to show at the Leicester Galleries the work completed by him since his exhibition there in the early part of the year. The group will be on view on and after October 6, and will include a portrait in bronze of Miss Doris Keane.

Photographs of Women's War Work.

An exhibition of photographs of women's war work has been opened in Sheffield. It contains a series of pictures of the making of internal combustion engines for aeroplanes, motor-cars, or lorries, and the results of the various processes illustrated are shown in a complete rotary engine for an aeroplane, which stands in the centre of the room.

Housing Reform, Nottingham.

The Nottingham Housing Committee has prepared a report for submission to the City Council, in reference to the housing conditions in the city. There are seven thousand houses in the city that are, it is stated, not fit for people to live in. Some of them are a century old, or more. Most of them are back-to-back houses, so that they can never be properly ventilated. They are all deficient in decent sanitary accommodation.

The R.I.B.A. Galleries Requisitioned.

The Army Council have requisitioned the Galleries known as the Maddox-street Galleries, forming part of the Institute premises and situated at the rear of No. 9, Conduit-street. The Galleries are required as temporary quarters for the excess staff of the Canadian Forestry Corps, which is closely connected with the Home-Grown Timber Department of the Board of Trade. The Civic Survey which has had the use of the Galleries during the past two years is now accommodated in the Common Room.

Housing at Barrow.

Steps are at once to be taken, it is stated, to erect the thousand houses in Barrow promised by the Minister of Munitions. Four hundred are to be built on the east side of Greengate Bridge; 300 between Cook's-lane and Roose; 150 at Salthouse; and 150 at Vickerstown, Walney Island. The houses will vary in size, some being four-roomed and others five-roomed. They are to be built of bricks and concrete. Material is being arranged for as well as labour, and 150 of the houses are to be ready for occupation by Christmas.

Cambridge University School of Architecture.

Professor Edward S. Prior, in the last issue of the *R.I.B.A. Journal*, called attention to the facilities for research in building science which are being provided by Cambridge University in connection with its Architectural School. Advanced students are recommended to take advantage of the arrangements the University is making for the equipment of research and experiment in (1) the Materials, (2) the Processes, and (3) the Administrations of Buildings. Professor Prior will be pleased to give information to anyone who may wish to treat such questions experimentally in the interests of British art and science.

R.I.B.A. Council Appointments to Standing Committees.

The following appointments to the Standing Committees have been made by the Council under By-law 51:

ART.—Messrs. J. J. Joass, Harry Redfern, John W. Simpson, Harry Sirr, Walter Tapper.

LITERATURE.—Sir John Burnet, R.S.A., LL.D., Messrs. J. D. Crace, H. M. Fletcher, H. G. Ibberson, Brook Kitchin.

PRACTICE.—Messrs. F. A. Powell, Herbert A. Satchell, H. A. Saul, W. Henry White, Wm. Woodward.

SCIENCE.—Messrs. H. W. Burrows, C. A. Daubney, Bernard Dicksee, J. E. Franck, W. Jacques.

Housing in South Wales.

Mr. Edgar Chappell, the secretary of the Welsh Housing and Development Association, estimates that before the war there was a shortage of at least 50,000 dwellings in the industrial areas of the South Wales coalfield, and he considers it probable that the requirements will be nearer 100,000 by the time building activities can be resumed. Already in Monmouthshire alone 15 local authorities are planning to build from 4,000 to 8,000 houses, but progress is slow. It is suggested that if a design standard in both construction and size were adopted dwellings which would be both permanent and comparatively cheap could be built of concrete. Near Cardiff there are three cement works capable of producing 500,000 to 600,000 tons a year.—*The Times.*

To Encourage British Designers.

The Design and Industries Association announce in our advertisement columns that they are about to hold a competition for the purpose of discovering and encouraging talent for colour design among British artists, designers and students. For this purpose the conditions have been drawn upon generous and sympathetic lines to avoid the unprofitable waste of energy on the part of competitors usually attending such competitions. A feature of the competition is that the most suitable designs will be purchased at generous rates, and out of the six selected competitors for the final competition, the unsuccessful competitors will receive an honorarium. The Design and Industries Association is a body formed to promote a better relation between artist, producer, and distributor and consumer, and it hopes thereby to improve the quality of design and fitness for purpose in all branches of British manufactured articles.

Changes at Hampton Court Palace.

Hampton Court Palace is so precious a possession of the Crown, and so greatly appreciated by the public that any additions to its structure are regarded with jealous anxiety. Recently some admirable work has been carried out by the Dowager Viscountess Wolseley, by permission of the King, and with the approval of the authorities, as a memorial to her late husband. Lady Wolseley occupies the house known as the Lady Housekeepers' Lodgings, formerly the residence of Princess Frederika, and granted to its occupant by Queen Victoria, in 1899. In its front hall, which has been judiciously enlarged, Lady Wolseley has completed the flooring of black and white marble in a design of a star of six diamonds, originally prepared for the Palace by Sir Christopher Wren. Within it she has laid down, in a simple oval, the arms of the Field Marshal, in lead work, incised in the marble, with dates commemorating his residence in the Palace. In an upstair room, in place of a poor and unsuitable ceiling, she has erected one with rich work in plaster, of high relief, representing Lord Wolseley's cipher and coronet, crossed batons, and oak wreath, while in a neighbouring room, in much simpler fashion, a similar ceiling, with Tudor rose ornamentation and cipher, is intended to commemorate her own residence in the house. A little turret in a downstair sitting-room has richer decoration given to it. It now glows like the page of an Italian missal, and forms a tiny oratory to the honour of Lord Wolseley. It is so well carried out that, while it forms a memorial, it is not likely to be any source of difficulty to a later tenant. From its beautiful pavement of Pavonazza and Verde Antico, to its ceiling of glowing armorial colour, it is perfect of its kind. The walls, bearing Lord Wolseley's Order of Merit, and the stars of his many orders, with allusions to the campaigns in which he took part and the dignities and commands he held, are examples of the skill in design of Mr. Davenport, and of the ability with which the work has been carried out by Mr. Powell.—*The Times.*

[Such a design as the old thatched cottage shown above is practically impossible to-day, because the heights of floors and positions of windows would not be tolerated. Notwithstanding this, however, the pleasant proportions and emphasis of such a delightful old cottage can be aimed for and in very many cases obtained.]

Leading Contents.

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ILLUSTRATIONS.

A. A. Designs.

DESPITE the very small number of students now working at the Association Schools, our illustrations show that the high standard which has distinguished the work of the school is maintained. We hope that, if architectural education is to be assisted after the war as part of a great scheme of higher education, it will be borne in mind that in Mr. Atkinson an ideal architectural teacher has been found, more capable than anyone we have known for the last forty years of building up a school of modern English design.

St. Paul's Cathedral at Bassien, Bombay, India.

Bassien is the headquarters of the "Taluka" of the same name in Thana district, about twenty-eight miles from Bombay. The river or strait separating the island from the mainland was a convenient rendezvous for shipping, and early attracted the notice of the Portuguese. In 1534, Bassien, with the land in its neighbourhood, was ceded to them by Bahadur Shah, King of Gujarat, and two years later the fort, with its numerous gateways, each marked with a church, was built. For more than two centuries Bassien remained in the hands of the Portuguese, and in 1739, after a siege of three months, passed into the hands of the Marathas, and later, in 1780, it was captured by a British army under the command of General Goddard.

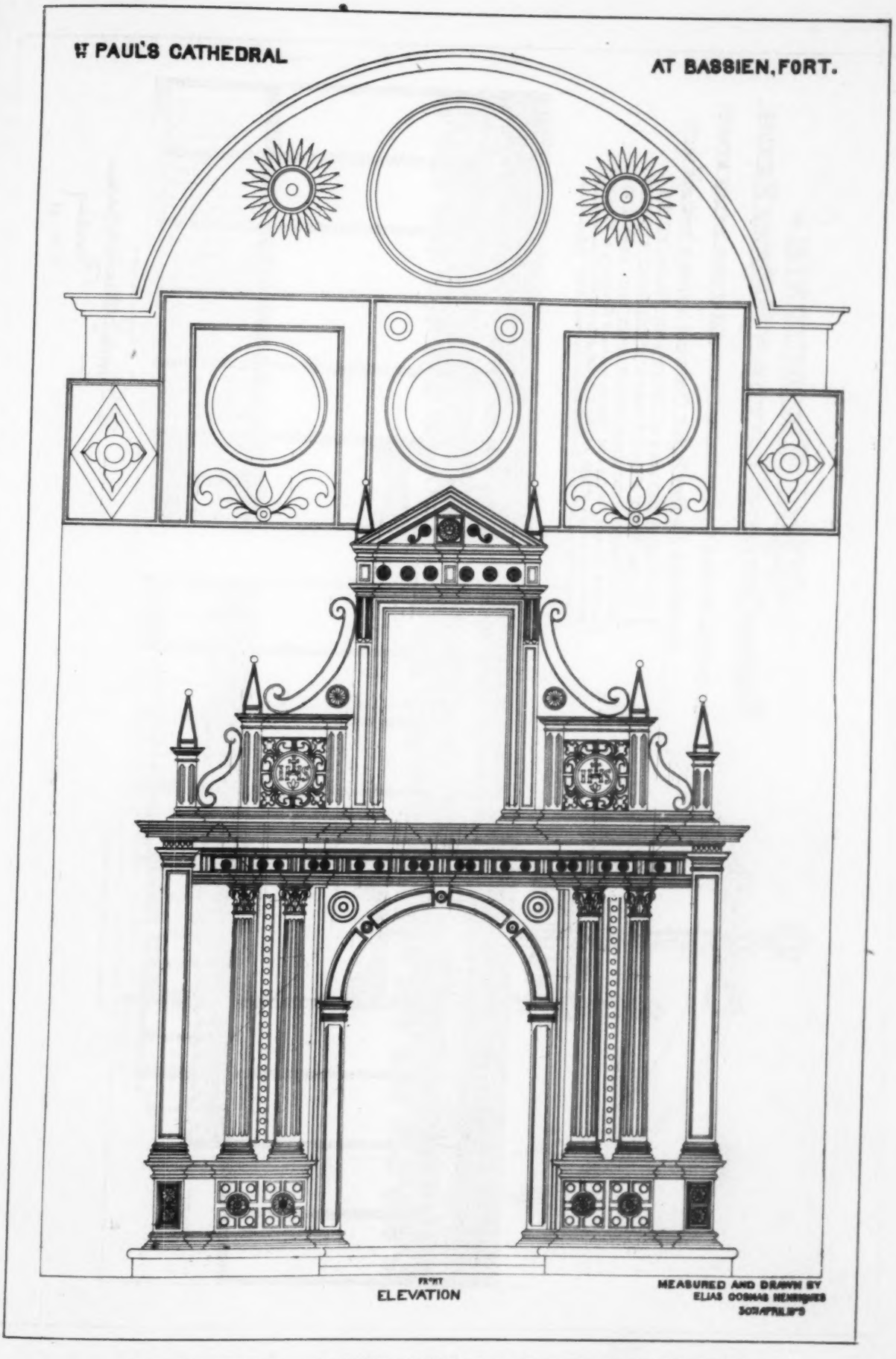
With plentiful supplies of both timber and stone, Bassien was adorned with many noble buildings, including the Cathedral, five convents, thirteen churches and an asylum for orphans. The dwellings of the hidalgos, or aristocracy, who alone were allowed to live within the city walls, are described as stately buildings two stories high, with balconies and large windows.

E. C. HENRIQUES.

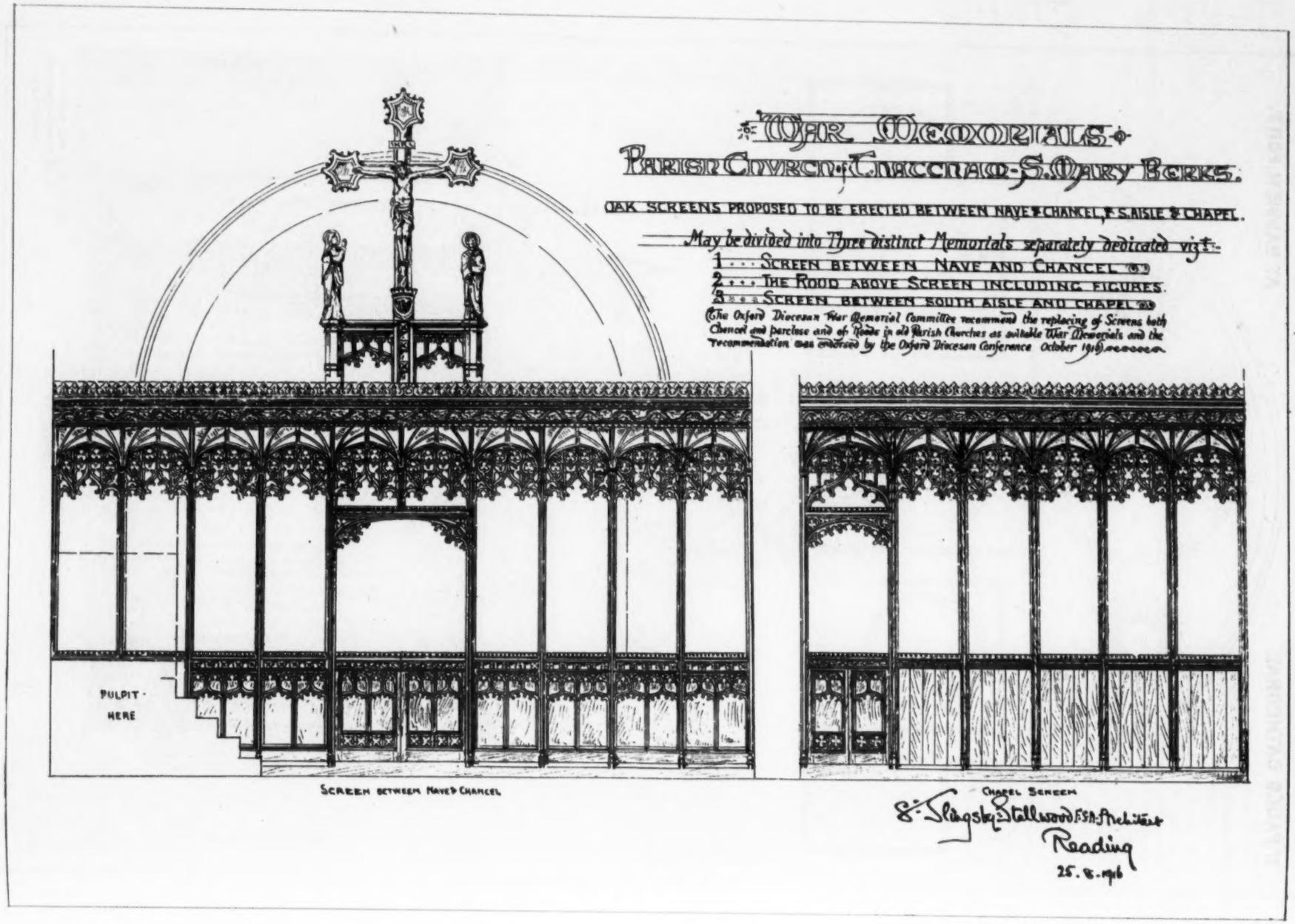
War Memorials: Thatcham Parish Church, Berkshire.

In our issue of September 14, quoting from the *Daily Graphic*, it was noted that the Bishop of Oxford had made a distinct appeal to the clergy of his diocese to persuade church folk, rich and poor alike, to combine in providing in the various parishes one corporate memorial of a worthy character, rather than place memorials in churches in an individual or spasmodic way. Following this appeal, the parishioners of St. Mary's, Thatcham, in the Oxford diocese, aim at erecting in their parish church, chancel and chantry screens as war memorials, designs for which, prepared by Mr. Slingsby Stallwood, F.S.A., of Reading, have been submitted to and generally approved by the Bishop and by the Diocesan War Memorials Committee, and are reproduced in this issue.

A Memorial Chapel: R.I.B.A. Test, 1917. Design by Mr. W. E. de Souza (Fourth Year Student).
Students' Work, Architectural Association Schools.



ST. PAUL'S CATHEDRAL AT BASSIEN, BOMBAY.—FROM A DRAWING BY MR. E. C. HENRIQUES.

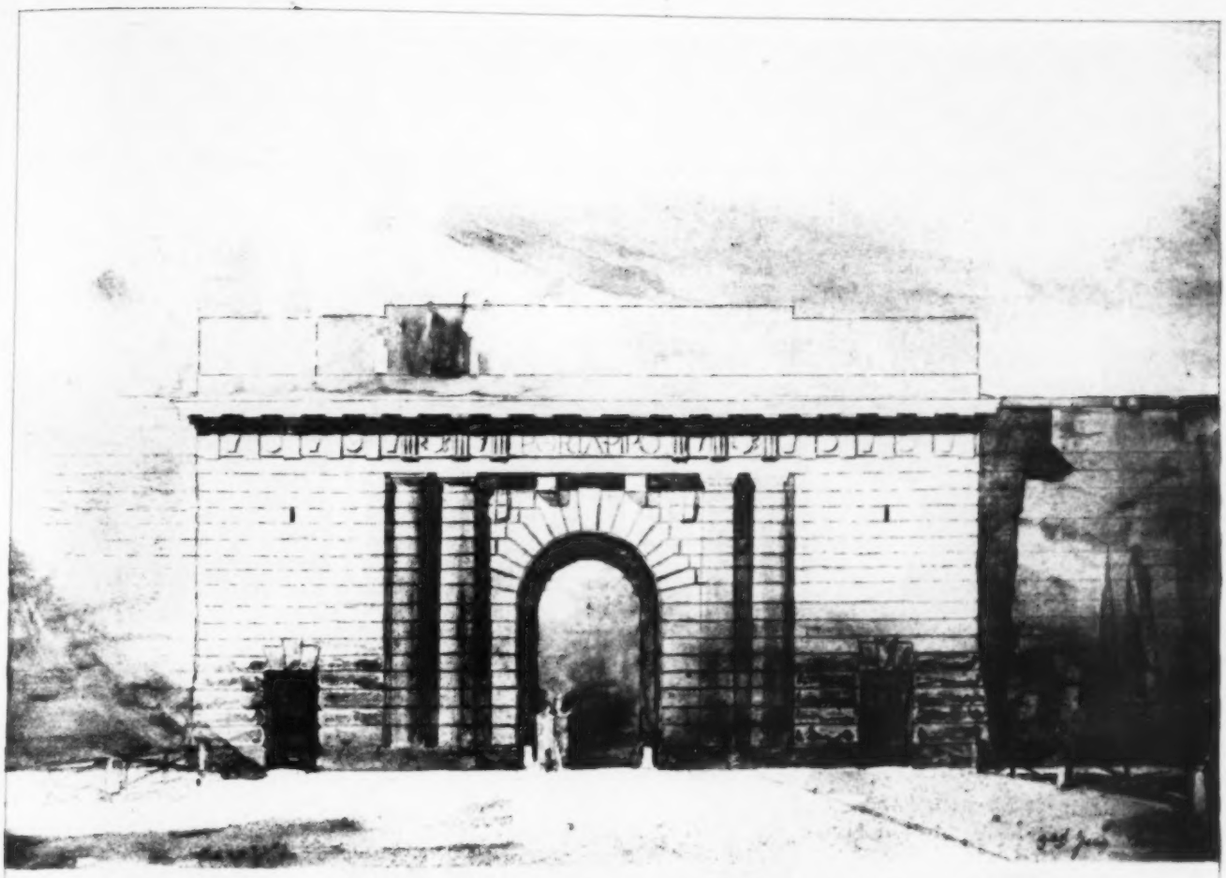

War Memorials
Parish Church of Thatcham - S. Mary Berks.
Oak Screens proposed to be erected between Nave & Chancel & S. Aisle & Chapel.
May be divided into Three distinct Memorials separately dedicated viz:-
1 ... Screen between Nave and Chancel £
2 ... The Roud above Screen including figures.
3 ... Screen between South Aisle and Chapel £
(The Oxford Diocesan War Memorial Committee recommend the replacing of Screens both Chancel and parclose and of Roods in old Parish Churches as suitable War Memorials and the recommendation was endorsed by the Oxford Diocesan Conference October 1916)
PULPIT HERE
Screen between Nave & Chancel
Chapel Screen
S. Slingsby Stallwood F.S.I. Architect
Reading
25. 8. 1916

A CHURCH FACADE OF THE ITALIAN RENAISSANCE.—Design by Mr. A. K. Chandhim (Third Year Student).

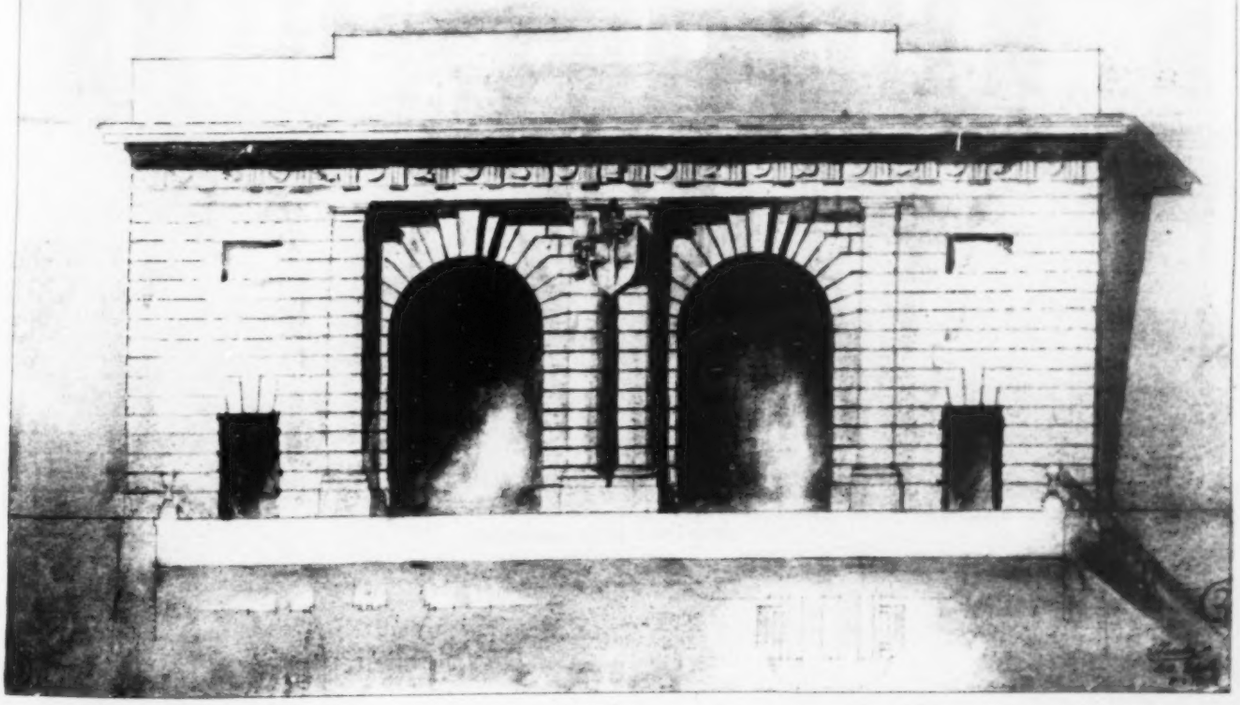
Students' Work. Architectural Association Schools.

A CHURCH FACADE OF THE ITALIAN RENAISSANCE.—Design by Mr. G. C. Gentry (Third Year Student).

Students Work. Architectural Association Schools.

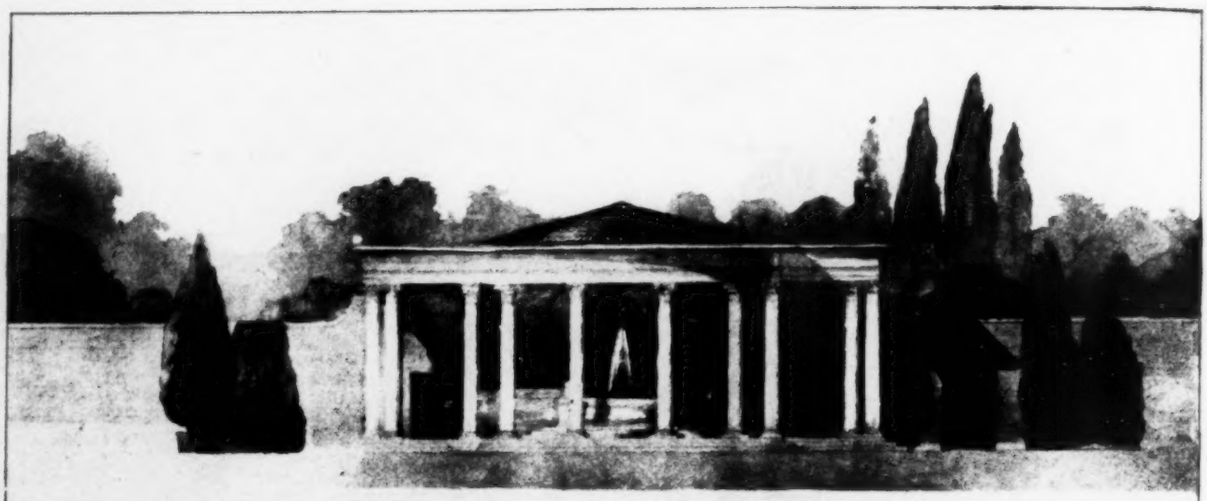


A GATEWAY IN THE STYLE OF SAN MICHAELI.—DESIGN BY MR. V. J. WENNING (THIRD YEAR STUDENT).

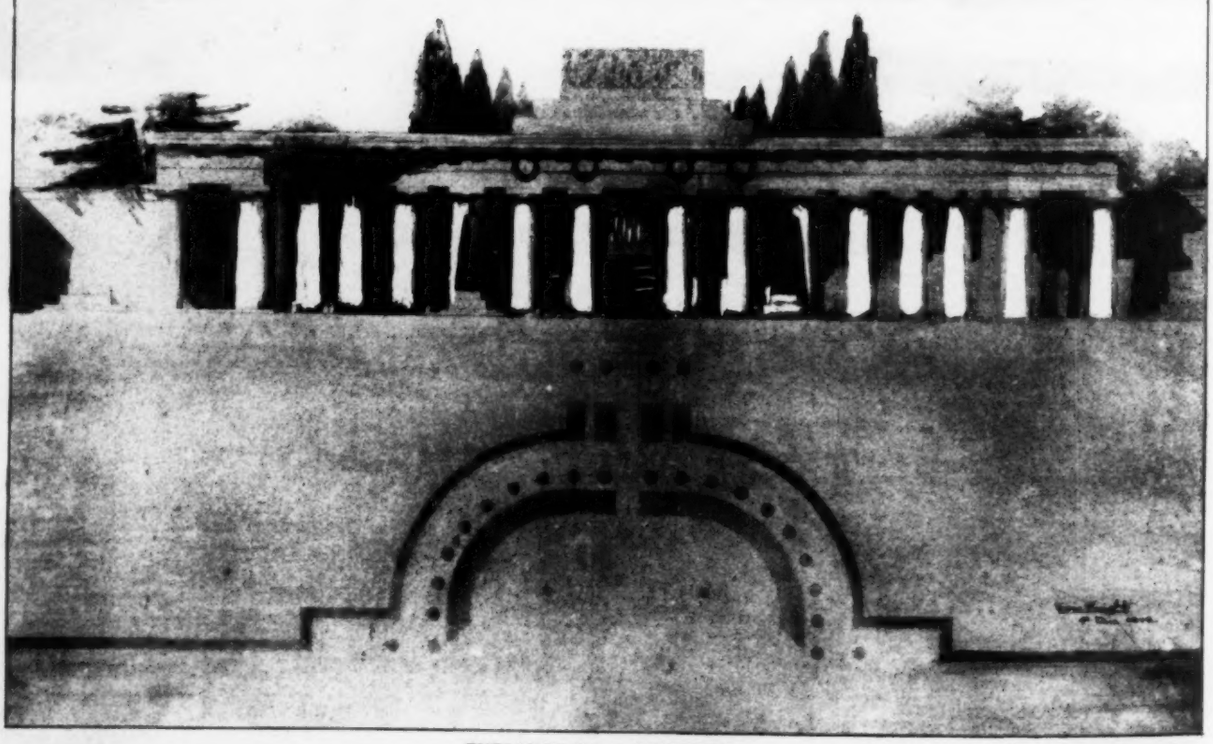


AN ENTRANCE GATEWAY TO A CITY IN THE STYLE OF SAN MICHAELI.—DESIGN BY MR. G. C. GENTRY.

STUDENTS' WORK. ARCHITECTURAL ASSOCIATION SCHOOLS.

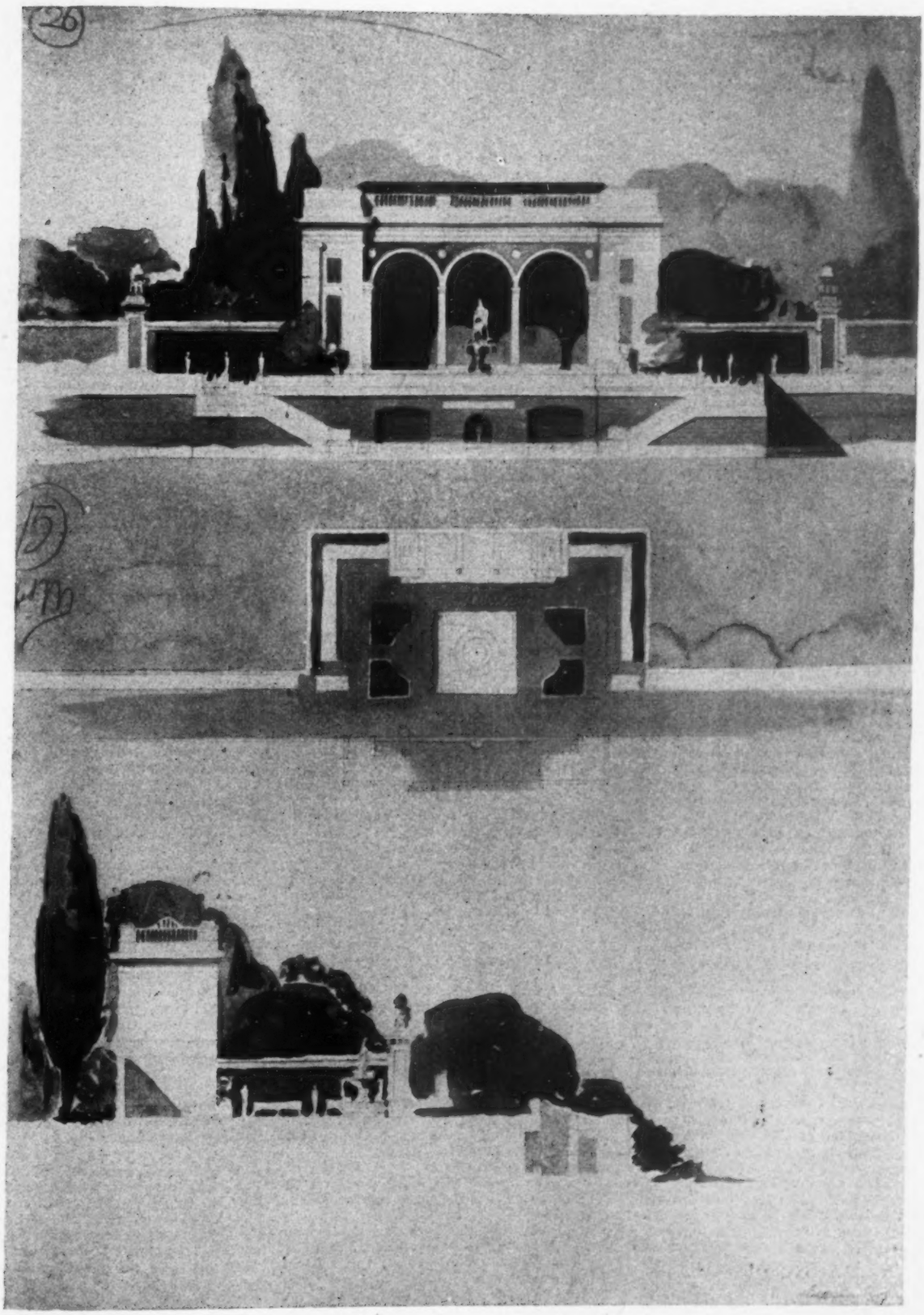


A WELL HEAD IN A KITCHEN GARDEN.



ENTRANCE TO A CEMETERY.

STUDENTS' WORK. ARCHITECTURAL ASSOCIATION SCHOOLS. DESIGNS BY MR. ERIC KNIGHT (THIRD YEAR STUDENT).



A Garden Loggia. Design by Mr. V. J. Wenning (Third Year Student).
Students' Work, Architectural Association Schools. (*See page* 202.)

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In our issue for August 24 a letter appeared, under the heading "The Pitfalls of Arbitration," in which attention was drawn to the question of costs in arbitrations. The writers of that letter pointed out that in building contracts the practice was to leave costs in the discretion of the arbitrator, and it was alleged that arbitrators sometimes dealt with the costs in a manner different from the practice adopted in the Courts, and the letter concluded with the suggestion that in arbitration clauses signed by builders it should be provided that costs should follow the event, "or better still that any reference to arbitration should be struck out of the agreement." The latter suggestion is somewhat drastic; but there is much to be said for the former.

The fact that in most arbitration clauses costs are left to the discretion of the arbitrator may be accounted for by the provisions of the Arbitration Act, 1889, schedule 1, clause (i) of which provides that "the costs of the reference and award shall be in the discretion of the arbitrators or umpire, who may direct to and by whom, and in what manner, those costs, or any part thereof, shall be paid, and may tax or settle the amount of costs to be so paid, or any part thereof, and may award costs to be paid as between solicitor and client," for no doubt this section of the Act, even where the whole Act is not incorporated in the submission to arbitration, has been adopted as a model.

There is, however, no necessity to adopt this clause, for it is expressly provided in section 2 of the Arbitration Act that "A submission, *unless a contrary intention is expressed therein*, shall be deemed to include the provisions set forth in the first schedule of this Act." And in the case of *In re* Prebble and Robinson (1892, 2 Q. B. 602) the Lord Chief Justice (Coleridge) said, "I cannot help thinking that in submissions to arbitration it is desirable that persons should know that resort may be had to the provisions of section 2 of the Arbitration Act, 1889, and that an intention may be expressed in them that the provisions of clause (i) of the first schedule shall not be applicable. The effect of that clause is to make arbitrators and umpires judges in their own cause, and to allow them to settle finally the amount of costs to be paid to them."

We therefore arrive at this proposition that there is no necessity to incorporate in a submission to arbitration the provisions of the Arbitration Act as to costs; but then the question arises what is the best course to adopt.

As regards the point raised in the latter part of the observations of Lord Chief Justice Coleridge the difficulty can, in some cases, be got over by arranging with the arbitrators what their remuneration shall be, either as a fixed sum for the case or by a fixed fee for each day they are engaged, with a fee for settling the award, and a provisional sum can be arranged for remunerating the umpire if one be called in. By this means the parties will know beforehand what will be the charges of the tribunal or the costs of the award.

The parties proceeding to arbitration have next to consider how they desire the costs of the tribunal, *i.e.*, the costs of the award and the costs of the reference, *i.e.*, their own costs, to be dealt with in the arbitration. They may think that the costs of the award should, in any event, be divided between them, and if they agree to this there will only remain the costs of the refer-

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IV.—METHODS OF CONSTRUCTION AND RELATIVE COSTS.

V.—NATURAL AND ARTIFICIAL LIGHTING.

Contents.

VI.—HEATING AND VENTILATING

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The fact that in most arbitration clauses costs are left to the discretion of the arbitrator may be accounted for by the provisions of the Arbitration Act, 1889, schedule 1, clause (i) of which provides that "the costs of the reference and award shall be in the discretion of the arbitrators or umpire, who may direct to and by whom, and in what manner, those costs, or any part thereof, shall be paid, and may tax or settle the amount of costs to be so paid, or any part thereof, and may award costs to be paid as between solicitor and client," for no doubt this section of the Act, even where the whole Act is not incorporated in the submission to arbitration, has been adopted as a model.

There is, however, no necessity to adopt this clause, for it is expressly provided in section 2 of the Arbitration Act that "A submission, *unless a contrary intention is expressed therein*, shall be deemed to include the provisions set forth in the first schedule of this Act." And in the case of *In re* Prebble and Robinson (1892, 2 Q. B. 602) the Lord Chief Justice (Coleridge) said, "I cannot help thinking that in submissions to arbitration it is desirable that persons should know that resort may be had to the provisions of section 2 of the Arbitration Act, 1889, and that an intention may be expressed in them that the provisions of clause (i) of the first schedule shall not be applicable. The effect of that clause is to make arbitrators and umpires judges in their own cause, and to allow them to settle finally the amount of costs to be paid to them."

We therefore arrive at this proposition that there is no necessity to incorporate in a submission to arbitration the provisions of the Arbitration Act as to costs; but then the question arises what is the best course to adopt.

As regards the point raised in the latter part of the observations of Lord Chief Justice Coleridge the difficulty can, in some cases, be got over by arranging with the arbitrators what their remuneration shall be, either as a fixed sum for the case or by a fixed fee for each day they are engaged, with a fee for settling the award, and a provisional sum can be arranged for remunerating the umpire if one be called in. By this means the parties will know beforehand what will be the charges of the tribunal or the costs of the award.

The parties proceeding to arbitration have next to consider how they desire the costs of the tribunal, *i.e.*, the costs of the award and the costs of the reference, *i.e.*, their own costs, to be dealt with in the arbitration. They may think that the costs of the award should, in any event, be divided between them, and if they agree to this there will only remain the costs of the refer-

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VI.—HEATING AND VENTILATING

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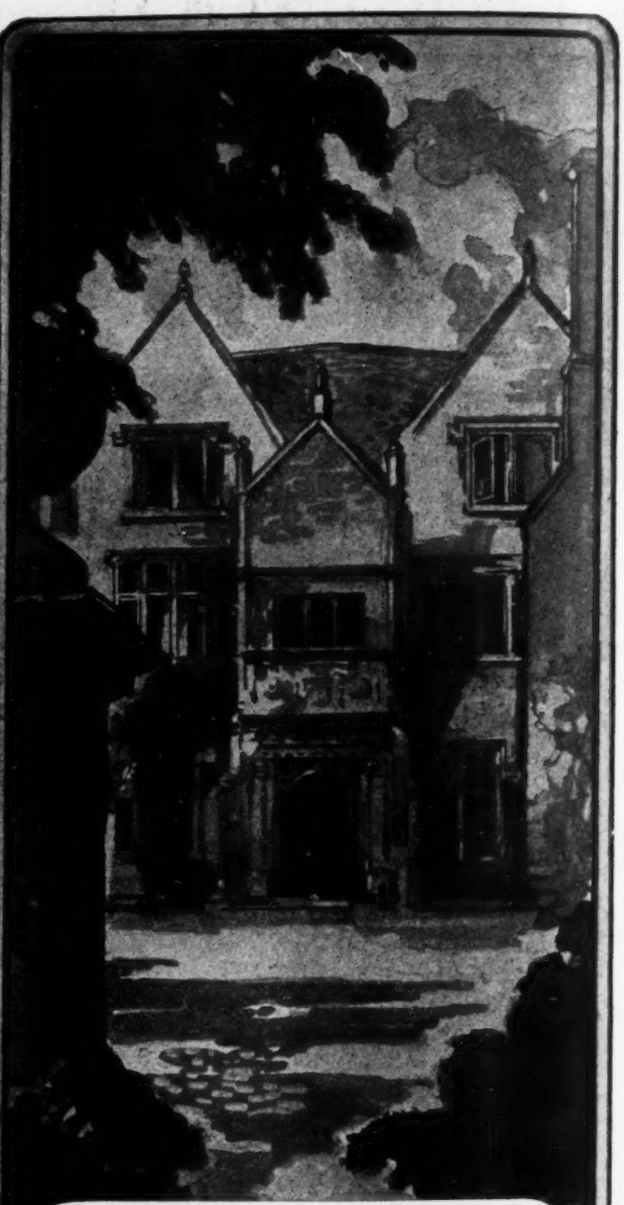

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ence to be dealt with by the arbitrator; on the other hand they may desire to leave all costs to the arbitrator, but their wishes should be expressed in the submission.

They have next to consider what powers over the costs they intend to leave to the arbitrator.

In the High Court the general rule is that costs shall be in the discretion of the court, except where the trial is by jury, in which case the costs follow the event unless "good cause" justifies the judge to order otherwise, and a technical meaning has been applied to the expression "good cause." In the county court all costs, unless for some statutory reason, are in the discretion of the court, but these tribunals exercise their discretion on certain well-known principles, although the discretion must be exercised in each case, and no hard and fast rule can be laid down by any court.

Arbitrators have not the same experience as judges, and their inclination may perhaps be said to be to interfere too much with the costs, and instead of allowing them to follow the event to apportion them between the parties.

Having regard to this tendency on the part of arbitrators, and bearing in mind that it is desirable in litigation that the successful party should obtain the reasonable costs of the litigation, possibly the best course for parties to adopt is to stipulate that costs shall follow the event, and indeed this was the rule in the courts of common law before the Judicature Act, 1875.

The objection to depriving the arbitrator of discretion, however, should not be lost sight of, for, of course, it may prevent unreasonable conduct of the parties from being visited with a liability for costs. Thus an exorbitant claim can be put forward involving one of the parties in heavy expenditure in disputing it, but if a small sum is recovered and costs follow the event the claimant will get the costs of the arbitration. Similarly, offers made by one party with a view to obviating expense in the proof of one or more issues cannot be taken into consideration in awarding costs.

Where parties to a particular dispute decide to refer the same to arbitration, by a careful agreement as to the terms of the submission they can do much towards getting over the drawbacks we have indicated as attending costs following the event, by strictly defining the issues, by making necessary admissions to obviate more formal proof, and so on, but an arbitration clause is generally inserted in contracts when they are first entered into, and long before any dispute has arisen, and it is of general application, and therefore such steps cannot be taken.

In such cases as we have indicated something can be done by arrangement as to the costs of the award, but the costs of the reference must either be left in the discretion of the arbitrator or be left to follow the event, and we have endeavoured to set forth some of the advantages and disadvantages involved by the adoption of either course.

THE COMMITTEE ON WAR DAMAGE.

A meeting of the Committee on War Damage was held at the Mansion House, London, on the 28th ult. The Lord Mayor, Sir W. H. Dunn, who presided, submitted a report on behalf of the Committee of Three, viz., himself, Lord Parmoor and Mr. Mark H. Judge, setting out their correspondence with the Government, but regretting they were not yet able to report any definite progress. The report closed as follows: "We all know how occupied the Prime Minister must be; and much as your Committee regret delay in the preparation of the scheme which is to give effect to the new policy of the Government, we must wait in patience, and we trust we shall before long be able to submit the scheme to you." On the motion of the Mayor of Tynemouth, seconded by the Vicar of Margate, the following resolution was passed:—

"That this Meeting re-affirms the Resolution passed at the meeting on the 3rd ultimo and further agrees that the pronouncement made by the Prime Minister on July 13th last affords a satisfactory solution of all questions connected with compensation for damage by air raids and bombardment."

The Lord Mayor of York then proposed:—

"That this Meeting desires our Committee of Three to meet the body authorised by the Government forthwith in order that a practical scheme to carry out the principle accepted by the Prime Minister may be formulated at the earliest possible time." The Mayor of Harrogate seconded this and it was supported by Sir William Chance, Sir Henry Kimber, Sir Richard Stapley, Sir Robert H. Rogers, Alderman A. F. Dod, and the Mayor of Ramsgate. The resolution was passed unanimously and on the motion of Mr. Judge a cordial vote of thanks was accorded to the Lord Mayor.

CORNISH BENCH-ENDS.

The rough vigour of the old carving on Cornish bench-ends is familiar to our readers. Here are some very fine examples sketched direct from the originals. The bench-end at Mullion is specially noticeable for the bold carving round the edges and the decorative effect of the heads in the panels, which almost suggest a country craftsman's rendering of fine French originals. In the Towednack end the decorative quality of the lettering is notable and the outline of the upper part is very suggestive. The modern end slightly indicated is a sensible and natural development.

Mullion

Towednack

Competitions, Contracts, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Contracts, xxiv; Tenders, —; Public Appointments, —; Auction Sales, —. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*****It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

BUILDING AND PAINTING.

OCTOBER 5.—**Stockton-on-Tees.**—PAINTING, &c.—The Guardians of the Stockton Union invite tenders for painting and other work at the Workhouse. Forms from Mr. John Rodham, Surveyor, 16, Finkle-street, Stockton.

OCTOBER 8.—**Manchester.**—EXTENSIONS.—The Markets Committee invite tenders for the extension of the Smithfield and Elm-street Cold Stores. Plans, &c., of the City Architect, Town Hall. Depcsit, one guinea.

OCTOBER 10.—**Bradford.**—ALTERATIONS.—The Corporation invite tenders for alterations and new fitting, for the proposed Commercial Library, Telegraph Chambers, Market-street. Drawings, &c., of the City Architect, Town Hall, Bradford.

OCTOBER 11.—**Plymouth.**—PAINTING.—The Guardians invite tenders for painting the whole of the outside wood and iron work of the Workhouse buildings, in the following sections:—(*a*) The Male and Female Imbecile Wards, (*b*) the Main Block, excluding the Old Infirmary and Dining Hall, (*c*) the Administration Block. Specification from the Master of the Workhouse.

OCTOBER 15.—**Wrexham.**—ALTERATIONS.—For certain structural alterations at Wrexham Union Workhouse for the B.G. Plan, &c., of Mr. J. G. Lowe, Acting Clerk to Guardians, 10, Temple Row, Wrexham.

OCTOBER 17.—**Richmond (Ireland).**—PAINTING.—The Joint Committee of the Richmond District Asylum invite tenders for exterior painting work at the Asylum, Grangegorman, Dublin. Deposit, 10s. Mr. W. J. Murphy, Chief Clerk. Asylum Offices, Grangegorman, Dublin.

FURNITURE, MATERIALS, etc.

OCTOBER 11.—**Birkenhead.**—MATERIALS.—Supply to the Directors of the Mersey Railway Company of Builders' materials, &c. Form of Mr. J. Shaw, General Manager and Secretary, Central Station, Birkenhead.

* NO DATE.—**Sheffield.**—The *Sheffield Telegraph* are asking for estimates for cleaning down the new building in High-street, Sheffield. Apply, Cashier, *Telegraph* Office, Sheffield.

OCTOBER 8 AND 9.—**London.**—LOCKERS, TABLES, &C.—Supply to the Commissioners of His Majesty's Works, &c., of (*a*) Lockers, (*b*) Trestle tables (3,000)., (*c*) cases of shelving (2,000), (*d*) slope-top desks. Forms of the Controller of Supplies, H.M. Office of Works, &c., King Charles- street, Westminster, London, S.W. 1. Tenders must be delivered before eleven a.m. on (*a*) and (*b*) Monday, 8th October, 1917, and (*c*) and (*d*) Tuesday, October 9, 1917.

ROAD, SANITARY, AND WATER WORKS.

OCTOBER 6.—**Manchester.**—SEWER PIPES, &C.—Supply to the Paving, Sewering and Highways Committee of the Corporation of glazed fireclay sewer pipes and glazed stoneware sewer pipes as may be required during the ensuing twelve months. Forms of the Secretary, Paving, &c., Department, Town Hall, Manchester. Also for repaving (with granited rock asphalt) Crossley-street (late Napier-street), Gorton, Manchester, from Gorton-lane to a point 227 yards distant in a southerly direction. Forms of the Paving, &c., Department (District Surveyor's Office), Town Hall, Manchester.

OCTOBER 11.—**Leeds.**—PRIVATE STREET WORKS.—The Corporation invite tenders for the concreting and tar macadamising of Hudson-road (part), Harehills, Leeds. Form of the Highways and Permanent Way Department, 1, Swinegate, Leeds.

OBITUARY.

Private W. W. Locke.

We regret to record the death of Private W. W. Locke, an old A.A. student, who was killed in France in August.

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V.—AIR PRESSURE AND SUCTION.

Air Pressure and Its Effects.

IT will be admitted in a general way that air exerts pressure, and as this is important in connection with understanding pumps, syphons and the like, it is desirable to appreciate how this pressure arises and how it is measured.

If a thing exerts pressure it must have weight, and that air has weight can be readily shown by sucking the air out of a vessel, balancing it with weights on a delicate pair of scales and then

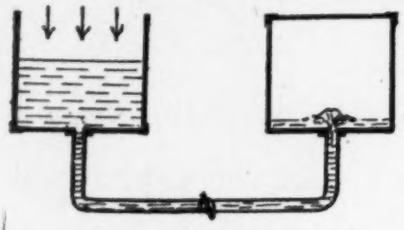

FIG 1.

letting in the air, when it will be found to weigh more. This weight is quite appreciable, 1 cubic foot of air weighing about 1¼ oz., or 1 cubic yard about 2 lb. Air transmits pressure in the same way as water, that is, equally in all directions; it is, in fact, very like water as regards its behaviour, apart from the important difference that it can be very easily compressed. We can best understand air pressure by regarding ourselves as living at the bottom of an ocean of air like creatures at the bottom of the sea; in both cases life exists under pressure due to the weight of the air or water above.

If a closed cistern full of water were placed at the bottom of the sea and the water pumped out of the vessel, it might well be that the unsupported pressure of the water outside would crush in the sides of the vessel. Just in the same way, if a thin vessel is exhausted of air it may be crushed by outside air pressure, and cases of collapse in practice from this cause are not infrequent, as when steam is generated in a vessel, driving out the air, and from some cause sudden cooling takes place turning the steam into water and forming a vacuum. The noises sometimes so troublesome in hot-water pipes are often attributable to this sudden collapse of steam separating a water column in the pipes.

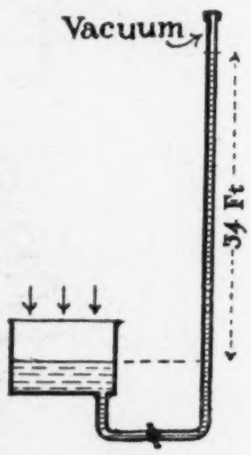

FIG 2.

Suppose that a vessel from which the air has been exhausted is attached to one containing water, then, instead of air rushing in when the vessel is opened, water will do so; the water is pressed down by the air outside, and when the vessel is opened an unbalanced pressure is produced which presses the water into the vessel (Fig. 1). The water which enters will, of course, itself exert a pressure downwards, so there would appear to be a limit to the height to which water can be thus forced up by outside air pressure into an exhausted vessel.

If the vessel takes the form of a vertical pipe, say 40 ft. long, it will be found that, on allowing the water to enter, it will not fill the pipe, but only rise to about 34 ft. above that in the open vessel, the space above remaining vacuous (Fig. 2). Hence at 34 ft. the weight of the water column tending to fall down must be the same as the weight of the air (in an imaginary pipe of the same base section) going up to the top of the atmosphere, pressing down, as only under these conditions would the water not move, as explained earlier in this article. Suppose the pipe to have a sectional area equal to one square inch, it will be found that 34 ft. run of water 1 sq. in. in section weighs about 14¾ lb., which must therefore be the weight

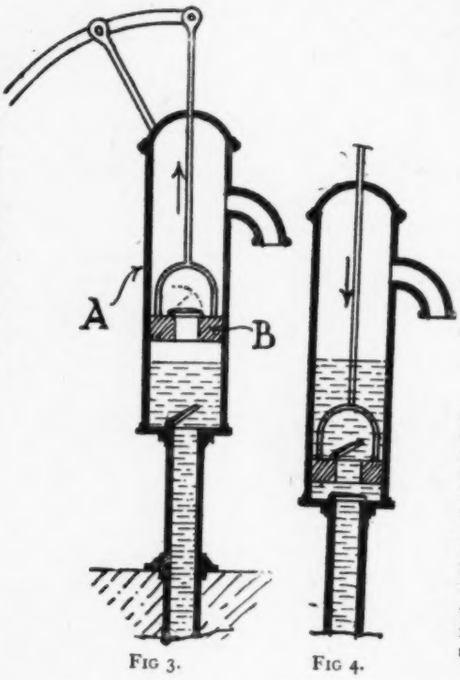

FIG 3. FIG 4.

per square inch of the air on the water, and, as the air is equally spread all over, every square inch of the earth's surface must be supporting such a pressure of nearly 15 lb. Further, as air-pressure, like water-pressure, is the same in all directions, it will be felt not only on the surfaces of things which are facing up, but on every part of the surface exposed to the air. Air pressure varying slightly with atmospheric conditions, the actual limits in the height of water held up by air pressure in a pipe would be in this country between 31 ft. and 35 ft.

Naturally, if a heavier liquid was used for this investigation it would not rise so high, since it would take less than 34 ft. vertical run 1 sq. in. in section to bring the weight up to the air-pressure of 15 lb. For example, quicksilver is 13½ times as heavy as water, hence a quicksilver column would only be about 34 ft. ÷ 13½ high = 30 in., and would vary with changes of air-pressure from about 28 in. to 31 in. in height. Such a column of quicksilver in a glass tube is called a barometer, and the air-pressure, since it is measured by the height of the barometer column, is often referred to as the barometric pressure.

Suction.

It is this unbalanced air-pressure which is popularly called "suction." If a tube is dipped into water and the air withdrawn by the mouth, the water will be "sucked up." The tube becomes vacuous owing to the removal of air, and the water rises on account of the unbalanced pressure due to the air outside. From what has

FIG 5.

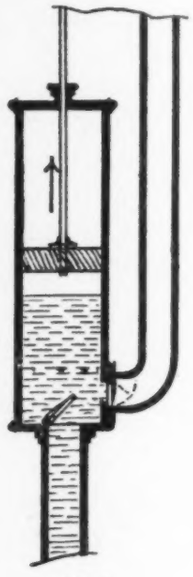

FIG 6.

been said it will be evident that water cannot be "sucked up" to a greater height than that equal to the air-pressure, namely, 34 ft.

Pumps.

An ordinary lift pump depends upon suction and consists of a barrel (A), and plunger (B), each with a valve capable of opening upwards only (Fig. 3). On pulling up the plunger (generally attached for convenience to a lever handle), the plunger valve being closed, water rises in the pipe owing to reduced pressure, through the valve in the barrel, which is opened by this reduction of pressure (Fig. 3). On depressing the plunger the water between the barrel valve and the plunger is forced through the plunger valve (Fig. 4), and when the plunger is again pulled up the water is ejected from the side outlet forming the pump mouth (Fig. 5).

Force Pumps.

Obviously a lift pump, depending as it does on suction, is useless for raising water more than 34 ft.; and in practice, since no valves or plungers are absolutely air-tight, such a pump is never used for a lift of more than about 28 feet. To raise water from greater depths, therefore, a different arrangement must be used. This consists of a barrel with a valve as before (Fig. 6), but above this valve is a side opening with another valve, also opening upwards only and attached to the pipe which is to convey the water to the exit. The plunger in this pump is solid; it has no valve. The barrel must be placed less than 34 feet above the water surface, as for a lift pump. When the plunger is raised, water enters the barrel by suction, as just previously explained; but when the plunger is depressed, the water compressed between it and the barrel valve is forced into the side pipe; on again raising the plunger, the pressure in the barrel is relieved and the weight of the water in the side pipe shuts the side valve. Further water is drawn up into the barrel, and on a second depression more is forced into the side pipe, these operations finally raising the water to the outlet, when it continues to flow out as the pump

is further operated. There is, therefore, no limit but the power applied, to the height to which water can be raised in this manner (Fig. 6)

The Syphon.

If a piece of pipe open at both ends be placed vertically in a vessel of water and the end projecting (Fig. 7) be stopped and the pipe then raised (Fig. 8), it will be found that the enclosed air above the water occupies more space than before, and continues to expand slightly the further the pipe is withdrawn. This is because it is no longer under the full pressure of the

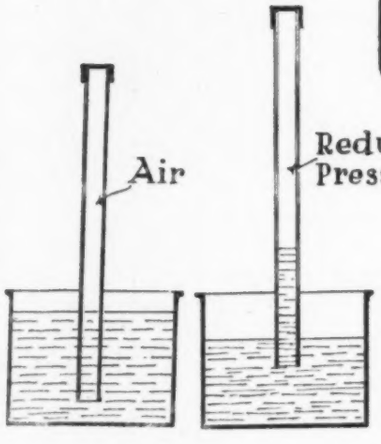

FIG 7. FIG 8.

atmosphere, which is partially counterbalanced by the water column in the tube. The air in these circumstances is said to be under "reduced pressure." If, for example, the water column is 4 feet high and the pressure of the air equal to 34 feet, then the enclosed air is only subjected to a pressure equal to 30 feet of water. Now, suppose a pipe shaped as in Fig. 9 be filled with water and placed with its open ends beneath water in two vessels in which the water is not at the same level, and we direct our attention to a little length of the water (A B) in the horizontal tube. The end A of this will be subject to the pressure of the air, less the height of A above the water at the lower level, say, 34 feet of water, less 2 feet. The end of the column B will, however, be subject to the pressure of the air, less the height of B over the surface in the fuller vessel—34 feet less 1 foot. There will, therefore, be an excess of pressure on the end B, and as the smallest force will move a liquid, the water will flow towards the lower open surface and will continue as long as any difference of level exists.

An arrangement of this kind is called a "syphon," and has many applications. It is not necessary for the discharging end to be below water, which was assumed above to assist in explaining the principle of its action. In order to work, the connecting tube must be filled to start with, and air must not be allowed to enter. A syphon is very useful for carrying water over obstacles. Water from a flooded basement, for example, may often be discharged into a manhole or lower ground at the cost of no more labour than filling the pipe. Since however, water will not stand in a pipe more than 34 ft. high, this is the limit of the height of the obstacle above the water surface from which the water is drawn for which a syphon can be used.

Applications of the Syphon.

In an ordinary water closet W.W.P. an open pipe is usually fixed vertically in the cistern connected with the down pipe supplying the flush. The top of this pipe is at the level to which the water is allowed to enter by the ball valve and over the open end is an iron bell-shaped vessel which is raised by the cistern pull (Fig. 10). On raising this bell the contained water is raised with it on the barometric principle already discussed, and thus overflows

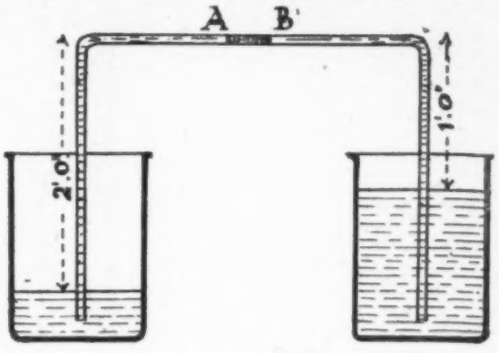

FIG 9.

down the open pipe. A syphon is thus produced which, since the flush is below the cistern, discharges the whole of the cistern contents. When an intermittent automatic flush is

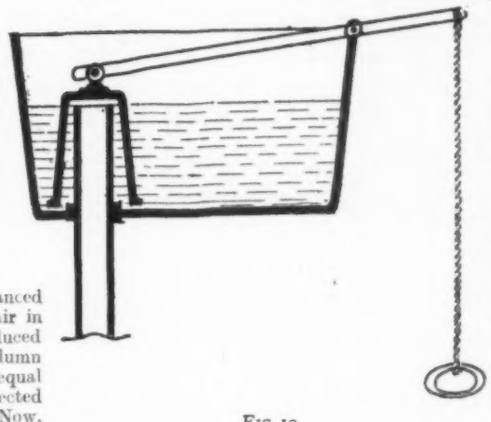

FIG 10.

required a bent tube is placed in the cistern, which is arranged to fill slowly at any desired rate without the use of a ball valve (Fig. 11). As soon as the bend of the tube is covered the tube is filled with water, and being much larger

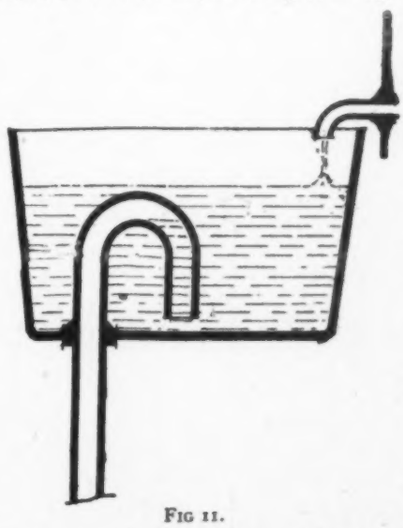

FIG 11.

than the supply pipe, discharges the whole of the contents rapidly, leaving the pipe at the end of the operation full of air. No further discharge can therefore take place until the water has again displaced this air by the filling of the cistern.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ALLOA.—The Committee appointed by Alloa T.C. to inquire into the question of housing accommodation in the burgh, and to prepare a report (with plan) on the building scheme to be undertaken after the war, have recommended the erection of 250 additional houses on ground in the west end of the town. The cost of the scheme is estimated to be between £80,000 and £100,000.

BLACKBURN.—The General Purposes Committee of the Blackburn Corporation has adopted the report of the special sub-committee on the offer of the Government to facilitate the building of houses for the working classes after the war. The sub-committee consider that the number of houses to be built after the war should be 500, and recommend the T.C. to express its willingness, provided the financial assistance rendered by the Government is adequate and satisfactory, to prepare a scheme for the provision of that number of houses for submission to the L.G.B. at an early date.

BRITON FERRY.—The Council has decided to proceed with an additional housing scheme, Mr. H. Alex. Clarke having been appointed architect.

BRISTOL.—The T.C. has adopted the Health Committee's recommendation to provide for 2,000 working-class houses to be erected after the war, on the understanding that the Government will give substantial financial help.

CHELTENHAM.—Plans passed:—Plane store, men's mess room, lavatory block D erecting shop at Sunningend Works.

CHEPSTOW.—The R.D.C. has appointed a committee, to draw up a housing scheme for Rogiet district.

DALKEITH.—The Duke of Buccleuch has written to Dalkeith T.C. expressing approval of a movement to inaugurate a housing scheme for providing improved working-class dwelling-houses.

DUBLIN.—The application of Mr. P. Kennedy, Parnell-street, for a site at the Goulding Wharf, North Wall, for grain stores and mill, has been considered by the Finance Committee of the Port and Docks Board. The necessary space required is about three acres. In addition to the mill and stores, provision is to be made for railway connection.

DUDLEY.—The Board of Education have approved, for the purpose of the proposed new technical school, the site, containing 8,599 square yards, bounded by Ednam-road and Priory-road, Dudley, and the E.C. has agreed with the Staffordshire C.C. to purchase the site. The T.C. has intimated to the L.G.B. its willingness to proceed with a scheme for the erection of 500 working-class dwellings, provided adequate financial assistance is forthcoming. The Council has also decided to erect 120 houses in a crowded part of the town, these schemes being in addition to the recent erection of 300 houses at a cost of £100,000.

EAST HAM.—Plans approved: Alteration to bake-house at rear of No. 837, Romford-road, for Mr. J. W. Lohden; store at rear of No. 28, Station-road, for Mr. W. S. Harris; proposed addition, rear of 383, Barking-road, for the Star Furnishing Co.; additions to scullery, rear of 315, Shrewsbury-road, for Mr. A. W. Corby; alterations and additions, 164, High-street North, for Messrs. E. Pollard & Co.; stable and cart shed, corner of Brookwood-road and Park-avenue, for Mr. W. Harris; corrugated iron and steel roof, over super heaters, Factory-road, Silvertown, for Messrs. Loders & Nucoline.

GREENWICH.—Plans passed: Drainage of Shooter's Hill-road, for Mr. G. F. Havell; building and drainage addition, 23, Greenwich-road, for Messrs. D. Bruin & Sons; drainage, Thames Iron Works premises, Penn-street, for Mr. J. H. E. Francis; building and drainage addition to Charlton Rope Works, Anchor and Hope-lane, for Messrs. W. Silk & Son, Ltd.; building and drainage additions to premises of New Gutta Percha Co., Crooms-hill; reconstruction of drains at 63, Blackheath-road, for Mr. J. H. Edwards.

HIGH WYCOMBE.—Mr. E. Gomme, High Wycombe, has submitted a plan to the T.C. for the extension of his chair factory in Green-street.

LANCASTER.—The Lancaster R.D.C. have decided to inform the L.G.B. that they are prepared to spend £100,000 for the provision of houses for the working classes within their area.

LLEYN.—The Lleyn R.D.C. has decided to adopt a scheme to provide 174 workmen's dwellings throughout the peninsula.

EYEMOUTH.—Eyemouth T.C. has decided that 60 new houses for the working classes will be required after the war.

MANCHESTER.—Plans passed:—Alterations to No. 9 Callender Room to works, Cambridge-street, Chorlton-upon-Medlock; addition to stables, Chester-street and Lower Chatham-street, Chorlton-upon-Medlock; addition to sub-station to works, Cambridge-street, Chorlton-upon-Medlock; boiler house, &c., to works,

* See also our list of Competitions, Contracts, &c., on p. 205.

Owen-street, Hulme; shop fronts, 153, Oxford-road and Boundary-street East, Choriton-upon-Medlock; five store sheds, West-street, Clayton; cloakroom to works, Waterloo-street, Crumpsall; pitching house to works, Collyhurst-road, Cheetham; boiler house, &c., to works, Blackley New-road, Blackley; stenter house to works, Culcheth Brow, Newton Heath; addition to works, Delaunay's-road, Crumpsall; offices, Spring-gardens, Fountain-street and West-Mosley-street; boiler-house works, Colliery-street and Wilson-street, Clayton; foundry, Chapel-street, Ancoats; store shed, Crabtree-lane, Clayton; alteration to works, Croft-street, Clayton; gangway to warehouses, Nos. 20–26, High-street, Birchin-lane, and Bridgewater-place; addition to works, Bromley-street, Clayton; drains, boiler house, &c., to works, Wilson-street, Clayton; foreman's office, Froxmer-street, Gorton; addition to works, Jackson-street and Abbey Hey-lane, Gorton; canteen to works, South-street, Openshaw; store to works, off Crabtree-lane, Clayton; alterations to works, Grove-street, Ardwick; shed to works, Crabtree-lane, Clayton; addition to house, No. 183, Hyde-road, Gorton; addition to works, Victoria-street, Openshaw; coke store, off Derby-street, South-street, Openshaw; cloakroom, &c., to works, Thomas-street, West Gorton; making-up room to factory, Ardwick-green North, Ardwick; workshop, Crabtree-lane, Clayton; offices, &c., Hay Market, Tonman-street, Byrom-street; workshops, Clapham-street, Moston; addition to offices, Broughton-street, Cheetham; staircase to factory, Carnarvon-street and Stephen-street, Cheetham; garage, Hayes-street, Whalley-street, Holland-street; steel-work, &c., to mill, Butler-street and Elizabeth-street, Ancoats; alterations and addition to works, Holland-street, Newton Heath; motor garage, Polygon-road, Crumpsall; store, Allum-street, Ancoats; addition, Snell-street and Buckland-street, Ancoats; canteen to works, Grimshaw-lane, Newton Heath; store, Water-loo-street, Crumpsall; boiler house to brewery, Monsole-road, Newton Heath; alterations and additions to works, Hulme Hall-lane, Newton Heath; gas meter house, &c., Burnage-lane; addition to works, Burnage-lane; addition to works, Crabtree-lane, Clayton; addition to offices to works, Whitworth-street, Open-shaw; conveniences to works, Cornwall-street, Open-shaw; stables, workshop and store, Higher Sheffield-street and Queen-street, Ardwick; alterations to premises, 26, St. Ann's-square; workshop, Lower Chatham-street, Choriton-upon-Medlock; alterations to the "Wheatsheaf Hotel," Queen-street and Lloyd Street, Hulme; addition to house, "Eastbourne," Palatine-road, West Didsbury; hoist to works, Cambridge-street, Choriton-upon-Medlock; motor garage, &c., College-road, Whalley-range, Withington; lodge to works, Cambridge-street, Choriton-upon-Medlock; alterations to premises, Ducie-street, Ducie-grove, and Brighton-street, Choriton-upon-Medlock; store to warehouse, Cornbrook-road, Hulme.

NORTHAMPTON.—The Boro' Engineer has been instructed to have certain repairs executed at Nos. 44 and 46, Bridge-street. Plans recommended for approval:—Motor garage, 19, St. Matthew's-parade, for C. F. Groome; conveniences and drainage at factory, St. Michael's-road, for the Northampton Union Bank; temporary sheds, Lincoln-road, for Padmore & Barnes; new bathroom, 26, Freehold-street, for G. Shrives; convenience and drainage, 14, Bath-street, for W. Rowthorn; cycle and tool shed, Tingdene, Abington Park-parade, for J. Brown; shop front and alterations, 159 and 161, Kettering-road, for C. E. Perkins; alterations to two houses (amended plan), Vicarage-lane, for J. Perkins; new bay window, 28, Delapre-garden Village, Towcester-road, for Miss Bouverie; reconstruction of drains, 10 and 11, Regent-square, for W. Colledge; rebuilding of Stables, Boat Inn, Old Towcester-road, for P. Phipps & Co., Ltd.; new shed at factory, Wellingboro'-road, for Manfield & Son; additions to Greenwood House, Harlestone-road, for F. W. Alsop; reconstruction of drains, 8, Cheyne-walk, for H. R. Primavesi; new convenience, 29, Abington-street, for A. R. & W. Cleaver; motor-house, Plot 103, Clarence-avenue, for E. C. Page; alterations to shop, Leicester-street, for Miss H. Martin; alterations to premises, Kingswell-street, for E. Barnes & Co.; temporary conveniences, Wood-street, for Hanwell & Co.; reconstruction of drains, 3-11, Burleigh-road, for J. Wadhams; new office, Cattle Market-road, for the Premier Accumulator Co., Ltd. (tenants).

RADSTOCK.—The U.D.C. has decided to inform the L.G.B. that the Council would be prepared to submit a scheme for the erection of forty houses after the war.

RHYL.—The Flintshire C.C. are considering the making of a new road from Rhyl to Gronant after the war, at a cost of £24,000.

SOUTHWARK.—Drainage plans passed by the T.C.:—South Eastern and Chatham Railway Co., to Southwark Grande Vitesse Depot, Gravel-lane, per H. E. Roberts, engineer; Messrs. Hoe & Co., to engineering workshop, Earl-street; Royal Insurance Co., to 56, Borough High-street; A. C. Richatson, to 60, Newington-causeway; per Thomas Keating, to 50 and 52, Union-street; Mr. W. H. Whisson, to 62, Upper Ground-street; Messrs. Sharp & Sons, to 43, Newington Causeway; Messrs. Cuthbert, Lane & Sutton, to 223–245 and 247–283, Sayer-street, and 25–27, Deacon-street; J. and A. Carpenter, to 11 and 12, Sutherland-place.

STANLEY.—The U.D.C. has approved plans of a wooden building in Ferry-lane, Stanley, for Mr. Joe Haigh; and a wooden building in First-avenue, Newton-hill, for Mr. H. Smith.

SUTTON COLDFIELD.—The General Purposes Committee recommend the T.C. to establish a market in a suitable position in the borough, the question of the building and equipment of a market hall being left over for the moment.

Book Received.

HISTORY OF THE ABBEY OF ST. ALBAN. By L. F. Rushbrook Williams. (London: Longmans, Green & Co. 7s. 6d. net.)

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	11	11	11	11	11	10½	10	8	8	8
Accrington	11½	11½	11	9½	9	10	9½	7	7	7
Altrincham	11	1/1	1/–	1/–	9	1/1	11½	9	9	9
Ashton-under-Lyne	1/–	1/1	1/0½	1/–	1/–	1/–	11	8½	9	9½
Barnsley	10½	11½	10½	10½	9	1/–	9½	8½	8½	8½
Barrow-in-Furness	11½	11½	11½	11½	11½	11½	11	8	8½	8½
Barry	1/–	1/–	1/–	1/–	—	1/–	11	9	9	9
Bath	9	9	9	8½	8½	9	8	6½	6½	6½
Bedford	8	8	9	8½	8	9	6½	5½	5½	6
Birkenhead	1/–	1/–	1/1	1/1	1/–	1/–	11	9	9	9
Birmingham	1/0½§	1/0½§	1/0½§	1/0½§	1/0½§	1/0½§	11§	9½§	9½§	9½§
Bishop Auckland	9	9	10	9½	1/–	9	8	6½	6½	7½
Blackburn	11½	11½	11½	11	10½	1/–	10½	8	8½	8½
Blackpool	1/–	11	11	9½	8½	9½	10½	6	6	6
Bolton	1/1	1/1	1/–	11½	11½	1/–	11½	7½	7½	9
Bournemouth	8½§	10§	10§	10§	8½§	10§	9½§	7½§	7½§	7½§
Bradford	1/0½	1/0½	1/–	1/–	1/0½	10†	10½†	10	10	10
Bridgwater	8½	8½	8½	8½	8½	8	7½	6	6	6
Brighton	9½	9½	9½	9½	—	9½	8	7	7	7
Bristol	11½	1/–	1/–	1/–	—	1/–	11	9	9	9
Burnley	11½	10½	11½	10½	9	10½	10½	7	7½	7½
Burton-on-Trent	9½	10½	10½	10	9	10½	9½	7½	7½	7½
Bury	1/–	1/–	1/–	11	11	11½	10½	8	8½	8½
Cambridge	11	10½	10½	10½	10½	11	9	7½	7½	7½
Cardiff	1/–	1/–	1/–	1/–	1/–	1/–	11	9	9	9
Chatham	9½	10	10	9½	9½‡	10	8½	7	7	7
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	9½	9½	9½	9½	—	9½	9½	6½*	6½*	6½
Chester	10½	11	11	11	11	11	10	6½	7½	7½
Chesterfield	9	10½	10	8	9	8½	8½	5½	5½	5½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	1/0½	1/0½	1/0½	1/0½	1/0½	1/0½	11½	10	10	10½
Crewe	9	9½	9½	10½	10	9½	10	7	7	7½
Darlington	11½	11½	11½	11½	10	9½	9	8½	8½	8½
Derby	11	11	11	11	11	10½	9½	8	8	8½
Doncaster	9½	10½	10½	9½	9½	9	8	6½	6½	7½
Dudley	9½	11	11	10	10	9½	8½	8	8	8½
Durham	9½	9½	9½	9½	10	9	8½	6½	6½	7
East Glam. and Mon. Valleys	10	10	10	10	—	—	9	7	7	7
Exeter	9½	9½	9½	9½	9½	9	8½	8	8	8
Folkestone	8½	9	9	9½	8½	9	8	7	7	7
Gloucester	8	9½	9½	8½	8½	9½	8½	7	7	7
Grantham	8	8	7½	7½–8	7½–8	8½	6½	5	5	5
Grays	—	11	11	—	—	11	9½	9	9	9
Grimsby	9	10	10½	10½	10	10	10	8	8	8
Great Yarmouth	8	8	8	—	8	8	6½	5	5	—
Halifax	1/–	1/–	11½	9	9	11	10	9½	9½	9½
Harrogate	10½	9½	11	9	8	1/–	9½	7½	7½	7½
Hartlepools	11½	1/–	1/–	1/–	1/–	10½	9	9	9	9½
Hastings	8½	8	8	8½	8	8	7	6½	5½	6½
Hereford	10	10	10	10	10	10	9	7½	7½	7½
Huddersfield	1/–	11	11½	9½	11	9	11	9½	9½	9½
Hull	11½	11½	11½	11½	11½	1/–	9	9½	9½	9½
Ipswich	9½	9½	9½	10	9½	10	8	7	7	7
Lancaster	10½	10½	10	10	9½	10	9	6	6½	7½
Leamington Spa	9	9½	9½	8½	9	9½	8½	6½	6½	6½
Leeds	1/0½	1/0½	1/–	11½	11½	1/–	10	9½	9½	10
Leicester	11½	11½	11½	11½	11	10½	9	9	9	9½
Lincoln	10½	9½	9	8½	10½	8	6	5½	6	6½
Liverpool	1/1	1/1	1/1	1/0½	1/0½	1/–	11½	9	9	9
Llanelly	9½	9½	9½	8½	9	8½	8	5½	5½	5½
London	1/1½	1/1½	1/1½	1/1½	—	1/2	11	10	10	10
Loughborough	10	10	10½	10	10	10	9	8½	8½	9½
Luton	9½	10½	10½	8½	9	8½	9½	8½	8½	8½
Maidstone	10	10	10	10	10	10	9	7	7	7
Manchester	1/1	1/1	1/1	1/0½	11	1/2	1/–	9	9	9
Mansfield	8½	11	10½	8½	—	10½	9	8	8	8
Merthyr Tydfil	11	11	11	11	11	11	10	8½	8½	8½
Middlesbrough	11½	1/–	1/–	1/–	1/–	10½	9	9	9	9½
Newcastle-on-Tyne	1/0½	1/0½	1/0½	1/0½	1/–	10½	11	9½	9½	9½
Newport, Mon.	11½	11½	11½	11½	11½	1/0½	10½	8½	8½	8½
Northampton	11	11	11	11	11	11	10	8½	8½	8½
Norwich	8½	8½	8½	8½	8	8½	7½	6	6	6
Nottingham	1/1	1/1	1/1	1/1	1/0½	1/1½	11½	10½	10½	11
Oldham	1/–	1/–	1/1	11½	11	11½‖	11½	8½	8½	9
Oxford	9½	9	9	9	9	9	8	6½	6½	6½
Plymouth	10*	10*	10*	10*	10*	10*	8½*	8½	8½	8½
Pontypridd	11	11	11	11	11	11	10	8	8	8
Portsmouth	11½	11½	11½	11½	11½	10½	9½	9	9	9
Preston	10½	1/–	11	10½	10½	11	10½	7½	8	8½
Reading	9	9½	9½	10½	—	9½	8½	6½*	6½*	6½*
Rochdale	11½	11½	1/–	11½	10½	1/0½	11	8½	8½	9
Rochester	8	10	10	9	9	10	8½	7	7	7
Rugby	11	11	11	11½	1/–	11	10	8	8	9
St. Albans	10	10	10	10	10	10	9	8	8	8½
St. Helen's	1/–	1/–	1/–	1/–	1/–	11	10½	7	7½	8
Scarborough	9	9½	9	8½	8	9	8	7	7	7
Sheffield	10½	11½	1/1½	1/1	1/1	1/1	10	10½	10½	10½
Shrewsbury	8½	9½	9½	9½	—	8½	7	6½	6½	6½
Southampton	11½	11½	11½	11½	11½	11½	10½	8½	8½	8½
Southend-on-Sea	9	9	9	9	P'cework	9	7	6	6	6
Southport	11½	11	11½	11	11	11	11	7	7½	7½
South Shields	1/0½	1/0½	1/0½	1/0½	1/–	10½*	11	9½	9½	9½
Stockport	1/1	1/0½	1/0½	11½	10½	1/–	10½	8½	9	9
Stockton-on-Tees	11½	1/–	1/–	1/–	1/–	10½	9	9	9	9½
Stoke-on-Trent	11½	11½	11½	11½	—	10½	10½	8½	8½	8½
Stroud	9	9	9	9	9	9	8½	7	7	7
Sunderland	1/–	1/–	1/–	1/–	1/–	9½	11	9	9	9
Swansea	1/–	1/–	1/–	1/–	1/–	1/–	11½	9	9	9½
Taunton	8	8	8	8	—	8	7	5½	5½	5½
Torquay	10	10	10	10	10	10	10	8	8	9
Wakefield	10	11	10½	9½	8½	10½	10	9	9	8½
Walsall	11½	11	11	11	11	11	9½	8½	8½	8½
Warrington	11	1/–	11½	1/–	1/–	11½	10½	7	7½	7½
West Bromwich	11	11	10½	10½	—	10	9	8	8	8
Wigan	11½	1/–	11½	11	10½	11½	10½	9	9	9
Windsor	9	9	9	10	—	9	—	6	6	6
Wolverhampton	1/–	1/–	1/–	11	11	1/–	10½	9	9	9
Worcester	9	9½	9½	9½	9½	9½	8	7½	7½	7½
York	9½	9½	9½	10½	10	10½	8½	8½	8½	8½

The Masons' rate given is for bankers; fixers usually ½d. per hour extra.
* War bonus of 2s. per week granted. † War bonus of 3s. per week granted. ‡ War bonus of 2s. 6d. per week granted.
‖ War bonus of 6s. per week granted. § 1d. per hour extra for men engaged on munition work.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1,000 Alongside, in River Thames.	£ s. d.
Best Stocks	2 10 0
Picked Stocks for Facings	3 5 0

Per 1000, Delivered at Railway Depot, London.

	£ s. d.		£ s. d.
Flettons	1 18 0	Best Blue Pressed Staffordshire	5 15 0
Best Fareham Red	4 0 0	Do. Bullnose	6 0 0
Best Red Pressed Ruabon Facing	6 0 0	Best Stourbridge Fire bricks	9 5 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	14 17 6	D'ble Str'tch'rs	20 7 6
		D'ble Headers	17 7 6
		One Side and two Ends	21 7 6
Headers	14 7 6	Two Sides and one End	22 17 6
Quoins, Bullnose and 4½in. Flats	18 7 6	Splays and Squints	19 17 6

Glazed bricks priced at so much each, 25 per cent. advance on list.

Second Quality, £1 per 1,000 less than best.

	s. d.	
Thames Ballast	8 9	per yard, delivered.
Pit Sand	11 0	
Thames Sand	12 0	„ „ „
Best Washed Sand	12 0	„ „ „
½ in. Shingle for Ferro-Concrete	11 6	„ „ „

Per ton, delivered.

	£ s. d.	£ s. d.
Best Portland Cement	2 10 0 ..	2 13 0

Do. £2 6s. alongside in 80-ton lots.
Ferrocrete 2s. 6d. per ton extra on above.
Best Ground Blue Lias Lime 1 7 6 at rly. depot.
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 1s. 3d. each and credited at 1s. each if returned in good condition within three months.
Grey Stone Lime ..... 47s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	1 7
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	1 8½
Do. do. delivered on road waggons at Nine Elms Depot	1 9½
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park, G.W.R., South Lambeth, G.W.R., or Nine Elms, or L. & S.W.R., per ft. cube	2 5½
Do. do. delivered on road waggons at Pimlico Wharf or Nine Elms Depot, per ft. cube..	2 6½

White basebed, 2d. per ft. cube extra.

RANDOM BLOCKS—Per Ft. Cube, delivered at Rly. Dpot.

	s. d.		s. d.
Ancaster in blocks	2 0	Closeburn Red Freestone	2 2
Beer in blocks	1 7½	Red & White Mansfield random block	2 9
Grinshill in blocks	2 4	Yellow Magnesian Limestone do. do	3 3
Darley Dale in blocks	2 5		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depot	s. d.
Scappled random blocks	3 4

Per Ft. Super. Delivered at Railway Depot.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 5
4 in. rubbed two sides, ditto	2 8
3 in. sawn two sides slabs (random sizes)	1 0½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 8½
1½ in. to 2 in. ditto, ditto	0 6½

HARD YORK—

Per Ft. Cube, Delivered at Railway Depot.	
Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depot.

6 in. sawn two sides landing to sizes (under 40ft. super.)	2 3
6 in. rubbed two sides ditto	2 7
3 in. sawn two sides slabs (random sizes)	1 0
2 in. self-faced random flags	0 5

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles or hand-made sand-faced tiles from either Broseley or Staffordshire district	3 0 0
Ornamental ditto	3 2 6
Hip and valley tiles (per dozen)	0 6 0

SLATES.

Per 1,000 of 1,200 f.o.r. London.

		£ s. d.
Best Blue Bangor Slates,	20 by 10	13 5 0
„ „ „	16 by 8	6 12 6
First quality „ „	20 by 10	12 15 0
„ „	16 by 8	6 10 0
Best Blue Portmadoc	20 by 10	13 5 0
„ „	16 by 8	6 12 6
First quality „	20 by 10	12 12 6
„ „	16 by 8	6 7 6

WOOD.

BEST BUILDING REDWOOD. Imported sizes.
Deals: 4 in. by 12 in., 4 in. by 11 in., 3 in. by 11 in., 4 in. by 9 in., and 2 in. by 11 in.
3 in. by 9 in., 2½ in. by 9 in., and 2 in. by 9 in.

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn

WOOD (*Continued*).

BEST BUILDING REDWOOD.
Battens: 2 in., 2½ in., and 3 in. by 8 in.
2 in., 2½ in., and 3 in. by 7 in.
2 in., 2½ in., and 3 in. by 6 in.
Scantlings: 2 in. by 3 in., 2 in. by 3½ in., 2 in. by 4 in., 2 in. by 4½ in.
3 in. by 4 in., and 3 in. by 4½ in.
Boards: 1 in., 1½ in., and 1½ in. by 6 in. and 7 in.
¾ in.
Seconds
Sawn pitch pine logs (about 35 cu. ft. average
Do. 6 in. to 10 in.

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn.

Best Pitch Pine Deals
Under 2 in. thick

JOINERS' WOOD

White Sea First Quality Red: 4 in. by 11 in...
3 in. by 11 in., and 2 in. by 11 in.
4 in. by 9 in.
3 in. by 9 in., and 2½ in. by 9 in.
3 in. by 11 in. boards
7 in. and 8 in. battens
7 in. and 8 in. boards

Archangel White Deals—
Best 3 in. by 9 in. and 10 in. and 11 in.
Seconds, do.
U.S. Battens

Prepared Floorings and Matchings. Seconds
Swedish Red and equal—
1¼ in. by 6½ in. planed and shot
1¼ in. by 6½ in. planed and matched
1 in. by 6½ in. planed and shot
1 in. by 6½ in. planed and matched
¾ in. by 6½ in. planed, matched, and beaded, or V jointed
1 in. by 6½ in. do.

Columbian or Oregon Pine, best quality
Yellow Pine—First regular sizes
Oddments
Seconds, regular sizes
Oddments
Kauri Pine—Planks per ft. cube

Dry Wainscot Oak, per ft. super, as inch	0 1 3	..	0 1 6		
¼ in. do. do.	0 0 10	..	0 1 2		
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 1 6	..	0 2 6		
Cuba, Mahogany	0 1 6	..	0 2 6		
Dry Walnut, American, per ft. super, as inch	0 1 6	..	0 2 6		
French, "Italian," Walnut	0 1 6	..	0 2 6		
Teak, per load (Rangoon or Moulmein)	30 0 0	..	40 0 0		
Do. do. (Java)	30 0 0	..	40 0 0		
American Whitewood planks, per ft. cube	0 0 9	..	0 10 0		
Glue, per cwt.	5 0 0	..	5 5 0		

METALS.

JOISTS, GIRDERS, &c.

Prices controlled by the Ministry of Munitions.

Rolled Steel Joists, ordinary sections, basis price
Plain Compound Girders, ordinary sections
Plain Compound Stanchions
Angles, Tees, and Channels, ordinary sections
Flitch Plates
Cast Iron Columns and Stanchions, plain ordinary patterns

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £4 net value delivered direct from works. 5 per cent. less carriage forward if sent from London stocks.)

	Tubes.		Fittings.
Gas	45	....	50
Water	40	....	47½
Steam	35	....	45
Galvanised gas	27½	....	42½
„ water	18½	....	40
„ steam	12½	....	37½

L.C.C. SOIL PIPE—

Pipes Coated.	s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd.	2 8	....	2 1	each	2 6
2½ in. „	3 1	....	2 4	„	3 2
3 in. „	3 10	....	2 6	„	3 9
3½ in. „	4 2	....	3 2	„	4 4
4 in. „	4 8	....	3 6	„	5 0

RAIN-WATER PIPES, &c.

Pipe.	s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd.	2 0	....	1 2	each	1 6
2½ in. „	2 2	....	1 5	„	2 0
3 in. „	2 6	....	1 9	„	2 6
3½ in. „	3 0	....	2 1	„	3 0
4 in. „	3 3	....	2 6	„	3 8

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 5s. 3d. .. 5 in., 6s. 3d. .. 6 in., 7s. 6d.

Per ton in London.

	£ s. d.		£ s. d.
IRON— Common Bars	16 10 0	to	17 0 0
Staffordshire Crown Bars - good merchant quality	16 10 0	..	17 10 0
Staffordshire "Marked Bars"	17 10 0	..	18 0 0
Mild Steel Bars	19 0 0	..	19 10 0

METALS (*Continued*).

Per ton in London.	£ s. d.		£ s. d.
Steel Bars, Ferro-Concrete quality, £19 basis price.			
Hoop Iron, basis price	20 0 0	..	20 10 0
„ Galvanised	33 0 0	..	—
(** And upwards, according to size and gauge.)			
Sheet Iron Black— Ordinary sizes to 20 g.	22 0 0	..	22 10 0
„ „ 24 g.	23 0 0	..	23 10 0
„ „ 26 g.	24 0 0	..	24 10 0
Sheet Iron, Galvanised flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	32 0 0	..	—
Ordinary sizes to 22 g. and 24 g.	32 0 0	..	32 10 0
Ordinary sizes to 26 g.	35 0 0	..	35 10 0
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	35 0 0	..	—
„ „ 22 g. and 24 g.	35 10 0	..	—
Ordinary sizes to 26 g.	38 10 0	..	—
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. g.	31 0 0	..	—
Ordinary sizes, 22 g. and 24 g.	31 10 0	..	—
Ordinary sizes, 26 g.	32 0 0	..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	24 10 0	..	—
Best Soft Steel Sheets, 20 g. and 24 g.	24 15 0	..	—
Best Soft Steel Sheets, 26 g.	26 10 0	..	—
Cut Nails, 3 in. to 6 in.	28 0 0	..	29 0 0

(Under 3 in., usual trade extras.)

LEAD, &c.

Delivered in London.	£ s. d.		
LEAD—Sheet, English, 4 lb. and up	38 10 0	..	—
Pipe in coils	39 0 0	..	—
Soil Pipe	42 0 0	..	—
Compo pipe	42 0 0	..	—

NOTE—Country delivery, 20s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra. Orders for over 1 cwt. Sheet Lead or Pipe, or 28 lbs. Solder should be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N.2 (E)], Hotel Victoria, S.W. Smaller quantities than the above can be obtained by making a written declaration to the Manufacturer or Merchant that the metal is wanted for urgent renewals or repairs, and giving the name of the job for which it is required.

COPPER— Strong Sheet per lb.	0 1 6	..	—
Thin „ „	0 1 8	..	—
Copper nails „	0 1 6	..	—
Copper wire „	0 1 8	..	—
BRASS— Strong Sheet „	0 1 6	..	—
Thin „ „	0 1 8	..	—
TIN—English Ingots „	0 2 6	..	—
SOLDER—Plumbers' „	0 1 1	..	—
Tinmen's „	0 1 5	..	—
Blowpipe „	0 1 7	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.
15 oz. fourths 5d.	26 oz. thirds	7½d.
„ thirds 5½d.	32 „ fourths	8d.
21 „ fourths 6d.	„ thirds	9d.
„ thirds 6½d.	Fluted Sheet, 15 oz.	6½d.
26 „ fourths 6½d.	„ 21 „	7½d.

Extra price according to substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
Rolled plate	4d.
Rough rolled and rough cast plate	4½d.
Rough rolled and rough cast plate	4½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6d.
Ditto, tinted	7d.
Rolled Sheet	5d.
White Rolled Cathedral	5d.
Tinted do.	5½d.

PAINTS, &c.

			£ s. d.
Raw Linseed Oil	in pipes per gallon		0 5 3
„ „ „	in barrels „		0 5 4
„ „ „	in drums „		0 5 7
Boiled „ „	in barrels „		0 5 7
„ „ „	in drums „		0 5 10
Turpentine	in barrels „		0 5 4
„	in drums „		0 5 7
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)			53 10 0
GENUINE WHITE LEAD PAINT— "Blackfriars," "Nine Elms," "Park," and other best brands (in 14 lb. tins) not less than 5 cwt. lots.. per ton delivered			69 0 0
Red Lead, Dry (packages extra) .. per ton			42 0 0

Orders for White and Red Lead and any Paint containing Lead must be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N. 2 (E.)], Hotel Victoria, S.W.

Best Linseed Oil Putty	per cwt.	0 14 6
Stockholm Tar	per gallon	0 3 6
Filocol	per cwt.	0 13 6

VARNISHES, &c.

Per gallon.	£ s. d.
Fine Pale Oak	0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 6
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil	1 1 0
Eggshell Flatting	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 18 0
French and Brush Polish	0 12 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Wednesday.*

* Denotes *accepted.* † Denotes *provisionally accepted.* ‡ Denotes *recommended for acceptance.*

CHESHUNT.—For the erection of substructure and other works in connection with the erection of a small-pox hospital, and consisting of foundation work, drainage, fencing, excavation for water mains, &c., near Andrew's-lane, Cheshunt, for the U.D.C. Mr. J. E. Sharpe, Engineer and Surveyor, Manor House, Cheshunt :—

C. J. Newby & Bros., Enfield..	£1,820	0	0
Jennings & Grenfell, Waltham Cross	1,669	0	0
Humphreys, Ltd., Knightsbridge, S.W.	1,560	8	10
[*P. R. Paul, Waltham Abbey ..	1,313	0	0

BERKHAMSTED.—For constructon of new filter bed at the sewage farm, for the Berkhamsted and Northchurch Joint Sewers Committee :—

Trudgitt & Co.	£1,250	0	0
Smith Bros.	1,175	0	0
*H. & J. Matthews	814	15	0

COWES (I.W.).—For painting and repairs, &c., at the East Cowes Council Mixed School, for the Isle of Wight E.C. :—

*W. H. Brading, East Cowes.....	£51	0	0

LANCHESTER.—For new hot water installation at the Langley Park Hospital, for the Lanchester Joint Hospital Board :—

*Straughan	£89	0	0

LONDON.—For the provision of a new boiler required in connection with the heating apparatus at the Town Hall, East Ham, E., and for the execution of the necessary work, for the Corporation :—

‡W. G. Cannon & Co.	£109	0	0

RATHFRILAND.—For carrying out the Rathfriland sewerage scheme, for the Newry No. 1 R.D.C. Mr. S. Wilson Reside, A.M.Inst.C.E.I., Resident Engineer, Margaret-square, Newry :—

John Graham	£4,808	8	11
Jas. Ross & Sons	4,719	8	4
S. & R. Boyd	4,129	15	5
†James Fleming, Newry	3,767	13	5

WILLESDEN.—For alterations and additions to the Willesden Municipal Hospital, Dog-lane, N.W. :—

‡W. J. Maddison, Clarkson-street, Canning Town, E.	£2,095	0	0

Seasoned
AUSTRIAN, RUSSIAN and JAPANESE **Oak**
SYDNEY PRIDAY,
KING WILLIAM HOUSE, 2a, Eastcheap, LONDON, E.C.
Depot: Wainscot Sheds, Millwall, E. *T.N.: Avenue 667.*

PATENTS.

APPLICATIONS PUBLISHED.*

106,507.—Deutsche Maschinenfabrik, A. G.: Inclined hoists for charging buckets.

108,808.—William Feldenheimer: Treatment of clay.

108,819.—Lewis William Goold (Arthur Philip Crosby and William Thompson Price): Radiators for heating buildings or other structures.

108,919.—Alfred Woolnough: Metal sections for window sashes.

108,932.—Walter Edgar Deboo: Poultry houses.

108,943.—George Henry Harrison: Packing-cases.

108,946.—Noah Garnett: Tile ashguards for stoves or fireplaces.

108,958.—Alfred Hagger: Locks and latches.

108,964.—Sir W. G. Armstrong, Whitworth & Co., and Alfred Smith Cheetham: Pipe connections.

* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

TRADE NEWS.

We are informed by the British Roofing Co., Ltd., that in consequence of their increasing business they have found it necessary to remove their general offices to more extensive premises at 11, John-street, Crutched Friars, London, E.C. 3, where all orders and enquiries for their Alligator Brand roofing felts and dampcourses should be addressed. The firm also specialises in asbestos slates and sheets, both flat and corrugated. Their telephone number is Avenue 3682.

J. J. ETRIDGE, Jr.
SLATE MERCHANTS, LTD.
EXPERTS IN
SLATING, TILING.
STRIPPING AND RELAYING.
Telephone: Avenue 4940 (two lines), or write
Bethnal Green Slate Works,
BETHNAL GREEN, LONDON, E.

NEW GOVERNMENT CONTRACTS.

Post Office.

Plates (*for Stay Rods*).—Walker Bros., Ltd., Walsall.

Rings (*Insulator*).—C. MacIntosh & Co., Ltd. Manchester.

Screws (*Coach*).—F. W. Cotterill, Ltd., Darlaston; Guest, Keen & Nettlefolds, Ltd., Birmingham.

Steps (*Pole*).—Guest, Keen & Nettlefolds, Ltd., Birmingham.

Swivels (*Stay*).—Bullers, Ltd., Tipton.

Wire (*Bronze*).—T. Bolton & Sons, Ltd., Oakamoor, North Staffs; Shropshire Iron Co., Ltd., Hadley, Salop; F. Smith & Co. (incorporated in the London Electric Wire Co. & Smiths, Ltd.), Salford, Manchester.

Wire (*Copper*).—T. Bolton & Sons, Ltd., Oakamoor, North Staffs; Elliotts Metal Co., Ltd., Selly Oak; Johnson & Nephew, Ltd., Manchester; F. Smith & Co. (incorporated in The London Electric Wire Co. & Smiths, Ltd.), Salford; Wilkes, Sons & Mapplebeck, Ltd., Birmingham.

Wire (*Enamelled and Flameproof*).—Fullers Wire & Cable Co., Ltd., Chadwell Heath.

Wire (*Iron, Galvanised, Strand*).—Rylands Bros., Ltd., Warrington; Whitecross Co., Ltd., Warrington.

Wire (*Steel*).—Rylands Bros., Ltd., Warrington.

TYE & ANDREWS' NEW PATENT SINK TRAP is universally admitted to be THE ONLY PERFECT TRAP FOR SINKS IN DOMESTIC DWELLINGS, as fixed at the principal Institutions. Among others, Wellington Barracks, Royal College of Surgeons, etc. Prospectus upon application to the Patentees.
ANDREW & NANSON,
BRIXTON ROAD, S.W.
Telephone: Hop 1972.
Supplied by all Lead Merchants & Ironmongers

Asphalte.—The Seyssel and Metallic Lava Asphalte Co. (Mr. G. F. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for dampcourses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to Forth Bridge Co. T.N. Central 2044.

OGILVIE & CO., Telephone: Dalston 1352. Many years connected with the late firm of W. H. Lascelles & Co. of Bunhill Row.
Mildmay Works, Mildmay Avenue, Islington, N.
EXPERTS IN HIGH-CLASS JOINERY.
ALTERATIONS AND DECORATIONS. ESTIMATES FREE.

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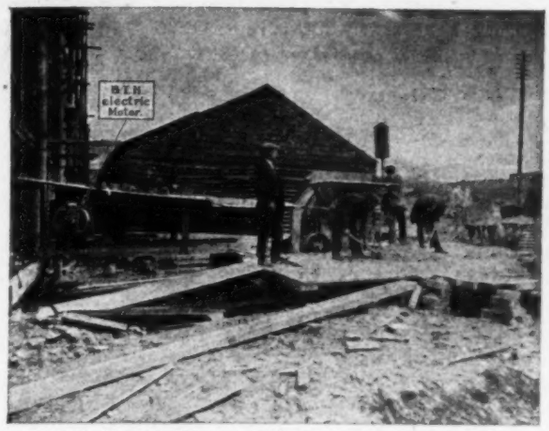
TILES
PLAIN AND ORNAMENTAL.
FOR WALLS, HEARTHS, FLOORS &c.
EMBOSSED, GLAZED, PRINTED, PAINTED, MOSAIC & ENCAUSTIC.

MAJOLICA
MOSAIC & C.
WHOLESALE AGENTS: MESSRS. W. B. SIMPSON & SONS, 97 and 99, ST. MARTIN'S LANE, LONDON, W.C.



B.T.H. Electric Motor driving concrete mixer during building operations; another B.T.H. Motor drives a hoist for lifting material.

B.T.H. Electric Motor driving machines in carpenter's shop. Being mounted above, all floor space is left free.

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in meeting the demand for economy at present and to come.

They can be used wherever a wire can be laid to them; can be started or stopped instantly; require far less attention than a steam or gas engine; are inexpensive to instal and maintain; thoroughly reliable in service; will run for years without repairs; and can be safely and easily operated by unskilled workmen.

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PERMANENT FIXINGS WILL PAY

On all Buildings exceeding 40 ft. in height, with glazed brickwork or windows to clean.

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OUR 40-ft. TOWER for EXPORT Packs Flat 13 ft. by 4 ft. 8 in. by 3 ft.

Wholesale Manufacturers of the

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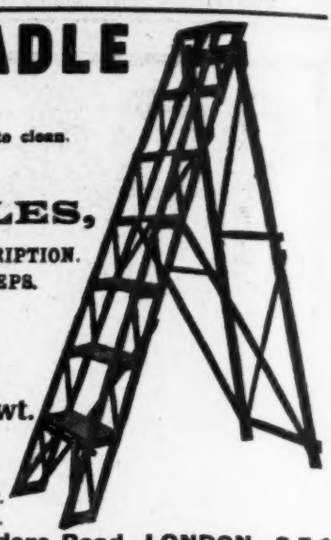

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Will not injure or prevent from drying subsequent coats of paint.

Best for cleaning Glazed Brickwork.

IN PASTE FORM. REDUCE AS REQUIRED—TO CLEAN PAINT 4 ozs. TO 1 GALLON WATER.

Chains and Slings Annealed and Tested. Scaffolding and Tackle of all kinds on hire.

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Telegrams—"Wireway, Phone, London." Telephone Nos.: Hop 1156 and Hop 69. EDWIN PALMER, Manager.

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First six lines 4s. 6d.; 6d. per line after.

TO CLEAR, at GREAT REDUCTION on Pre-War Prices, a Large Selection of MIRROR FRAMES and UPPER PARTS TO CHIMNEY PIECES.—Full particulars with illustrations on application. A large selection of Chimney Pieces always in stock.—BATTISCOMBE & HARRIS, Ltd., 47, New Cavendish-street, London, W. 1.

SECOND-HAND SCAFFOLDING REQUIRED, any quantity.—Write T. D. W., c/o Crossley & Co., Ltd., 97, Coleman-street, E.C. 2.

WANTED.—1¼ in. or 2 in. DEAL PLANKS for Shuttering; New or Second-hand.—Full particulars to H. PITTARD & SON, Contractors, Langport, Somerset.

OLD OAK TIMBER of good size, and OLD ROOFING TILES WANTED. Particulars and price to—Box **309**, Office of "The Builder."

SCAFFOLD POLES WANTED, 24 ft. and up. Lowest price, delivered to van.—GALBRAITH BROS., LTD., 63, Waterloo-street, Camberwell, S.E.

FORTY 16 ft. 3 in. × by 11 ft. Yellow CARCASSING WANTED, or lesser number of lengths.—Price and particulars to Box **304**, Office of "The Builder."

FOR SALE.—STEEL PILES (Second-hand), about 250, in various lengths from 17 to 40 feet.—Box **301**, Office of "The Builder."

FOR SALE.—A Large Quantity of Good HARDCORE. Also a large quantity of good, hard-burnt BALLAST and SAND mixed.—Apply GOLBY, Estate Office, Mill Hill, N.W. 7. 'Phone: Finchley 1468.

130 PIECES ROUGH PLATE GLASS, suitable for roofing. Sizes from 34×13 to 42×15.—H. W. FINN, 18, Amhurst-park, N. 16.

BUILDER'S MATERIALS AND PLANT.—Mortar Mill, Ironmongery, Tiles, Doors, Mouldings, etc.—Box **298**, Office of "The Builder."

OFFERS WANTED for the following SCAFFOLDING within eighteen miles of London:—
100 SCAFFOLD BOARDS, part hooped.
80 POLES, 22 to 28 ft. long.
12 dozen SCAFFOLD CORDS, 40 PUTLOGS, 2 doz. MORTAR BOARDS, 1 30-rd. LADDER, 1 25-rd. Ditto. All in good condition. Also about two loads Firewood and other useful material. Can be seen by appointment.—Box **302**, Office of "The Builder."

SLATE and MARBLE SLABS, dressed one side, various sizes up to 6 ft.; Lavatory Basin, Table Tops, Shelves. Suit factory floors. 6d. foot. Several tons cheap to clear.—ABBOTT, 25, Gale-street, Devons-road, Bow.

LIME & HAIR, MORTAR, Etc.,
of superior quality and in any quantity

BROKEN BRICK.
CRUSHED GRANITE.
SANITARY GOODS, PARTITION SLABS

BRICKS, LIMES, CEMENTS.

SIRAPITE AND OTHER PLASTERS.

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FOR SALE.—One Willans PATENT CENTRAL VALVE, 40-h.p. COMPOUND ENGINE, "RE" size, 10 in. low pressure cylinders, 5 in. stroke. Condition as new. Price £150. Can be inspected upon application to LAMSON PARAGON SUPPLY CO., Ltd., Canning Town, E. 16.

LARGE STOCK of DOORS, Mouldings, Turnery, Matchings, Plywood, Deal and Oak Flooring, etc., always on hand. Lists post free. Sawing and Moulding for the trade. Government requirements and round mouldings and poles a specialty. Low prices, good work.—BRYCE, WHITE, & CO., Deseronto Sawing and Moulding Mills, Wharf-road, City-road, London, N. 1.

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SCAFFOLDS ERECTED.
LADDERS, STEPS, TRESTLES.
15/- Navvy Barrows
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LEWIS & LEWIS, Ltd.,
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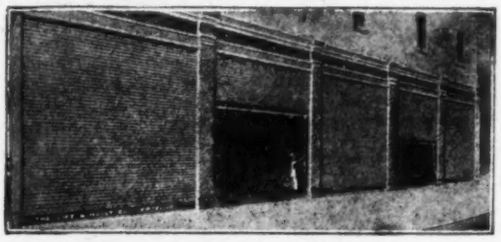

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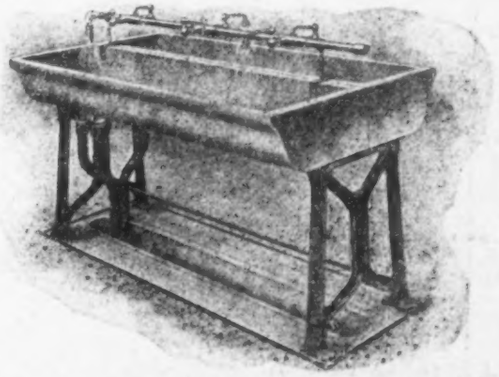

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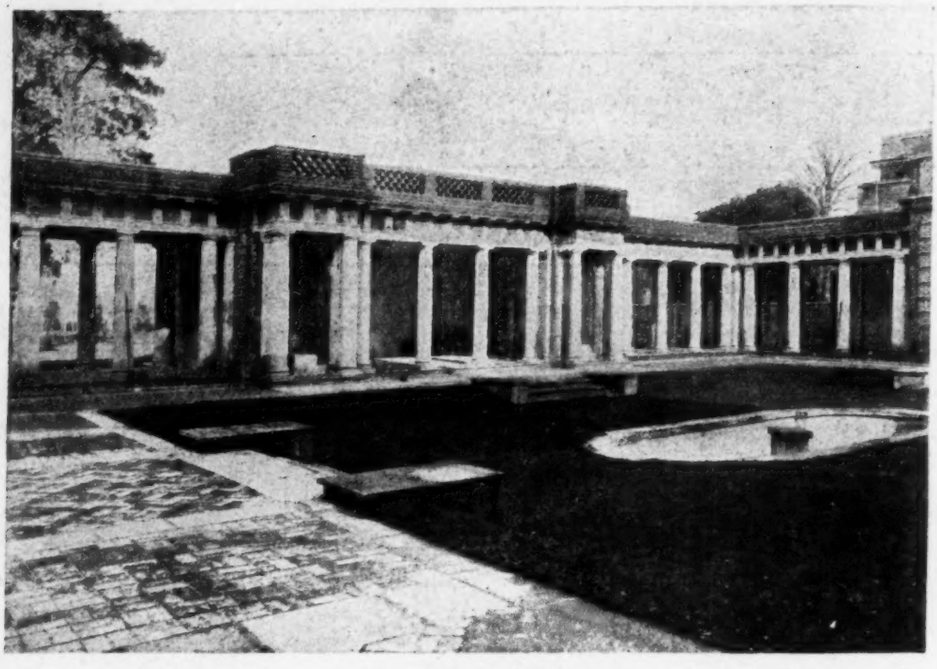

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